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GLOBAL DATA MONITORING REPORT

February, 1997

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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

3. Composite Observing Systems for the North Atlantic (COSNA)

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

N.B. 500 km SATEMs are no longer assimilated into the UKMO global Unified Model. Both 500 km and 120 km SATEMs were replaced on 16th April 1996 by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS (from NOAA-12 and NOAA-14).

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 has been replaced by statistics for GOES-8 and GOES-9.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.¦bias¦ ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
C6FA6	ALL	MSLP	SUR	37	0	0	1.1	-6.5	6.6
C6HD5	ALL	MSLP	SUR	58	0	0	1.7	5.7	5.9
C6LI6	ALL	MSLP	SUR	40	0	0	1.2	7.4	7.5
DLDQ	ALL	MSLP	SUR	24	0	0	1.0	-4.2	4.3
DUWH	ALL	MSLP	SUR	26	0	0	4.1	-4.2	5.8
ELRE5	ALL	MSLP	SUR	63	1	2	1.1	7.7	7.8
ELSU8	ALL	MSLP	SUR	26	1	4	4.3	7.5	8.6
EUJV	ALL	MSLP	SUR	28	2	7	2.4	5.8	6.3
KAOU	ALL	MSLP	SUR	75	0	0	2.9	4.3	5.2
KNDM	ALL	MSLP	SUR	26	2	8	1.4	11.9	11.9
OXRO2	ALL	MSLP	SUR	28	3	11	1.0	-5.6	5.6
OZBW6	ALL	MSLP	SUR	38	0	0	2.4	4.2	4.8
OZVW6	ALL	MSLP	SUR	33	0	0	1.3	4.6	4.8
S6CL	ALL	MSLP	SUR	39	0	0	1.1	5.5	5.6
UCAC	ALL	MSLP	SUR	20	1	5	1.4	4.2	4.4
UCJJ	ALL	MSLP	SUR	28	5	18	3.8	9.2	9.9
UICP	ALL	MSLP	SUR	39	25	64	2.5	-4.2	4.9
VRUR6	ALL	MSLP	SUR	44	0	0	2.1	5.3	5.8
V7AT5	ALL	MSLP	SUR	64	32	50	1.3	13.7	13.8
V7AW8	ALL	MSLP	SUR	31	0	0	0.8	4.4	4.5
WMGD	ALL	MSLP	SUR	47	1	2	0.9	10.3	10.4
3FZW	ALL	MSLP	SUR	22	0	0	1.3	5.3	5.5
9MBW7	ALL	MSLP	SUR	37	0	0	2.5	8.0	8.4
9VHU	ALL	MSLP	SUR	21	0	0	1.0	5.8	5.9
9VIH	ALL	MSLP	SUR	27	1	4	1.6	-5.0	5.3
WIND SPEED									
DYZJ	ALL	SPEED	SUR	36	1	3	5.5	10.0	11.4
ELAX2	ALL	SPEED	SUR	37	0	0	2.3	5.8	6.3
ELGH5	ALL	SPEED	SUR	29	0	0	3.2	7.0	7.7
ELRJ6	ALL	SPEED	SUR	23	0	0	1.2	5.5	5.6
FNPH	ALL	SPEED	SUR	63	1	2	6.9	8.4	10.9
FNQM	ALL	SPEED	SUR	44	3	7	6.0	11.7	13.2
FNWX	ALL	SPEED	SUR	25	1	4	5.3	6.5	8.4
GHMA	ALL	SPEED	SUR	47	0	0	2.6	-7.1	7.6
LAFH4	ALL	SPEED	SUR	26	0	0	4.2	5.0	6.5
PDMQ	ALL	SPEED	SUR	20	0	0	6.8	8.2	10.7
PFIJ	ALL	SPEED	SUR	22	0	0	7.9	8.1	11.4
PGRE	ALL	SPEED	SUR	23	2	9	6.3	5.8	8.6
PJNP	ALL	SPEED	SUR	20	1	5	5.2	5.1	7.3
PJOY	ALL	SPEED	SUR	27	0	0	5.1	10.5	11.7
PJWC	ALL	SPEED	SUR	22	0	0	5.7	6.7	8.8
SKOZ	ALL	SPEED	SUR	21	0	0	4.2	7.8	8.9
SKPE	ALL	SPEED	SUR	29	0	0	6.5	8.2	10.4
WSDX	ALL	SPEED	SUR	22	0	0	3.9	5.3	6.6
YJQK4	ALL	SPEED	SUR	68	0	0	4.0	5.2	6.5
ZCBE7	ALL	SPEED	SUR	22	0	0	4.0	5.1	6.5
3BIX	ALL	SPEED	SUR	31	0	0	4.2	6.8	7.9
3FTW	ALL	SPEED	SUR	66	0	0	4.5	-6.8	8.1
62115	ALL	SPEED	SUR	20	0	0	3.8	5.2	6.4
9VIH	ALL	SPEED	SUR	20	0	0	3.9	7.5	8.4
WIND DIRECTION									
CFD3659	ALL	DIRN.	SUR	22	1	5	44.2	-36.8	57.6
ELHR9	ALL	DIRN.	SUR	39	0	0	84.3	2.5	84.3
LBHA	ALL	DIRN.	SUR	28	0	0	73.0	-30.6	79.2
NRUO	ALL	DIRN.	SUR	21	0	0	72.9	31.1	79.2
3FSL4	ALL	DIRN.	SUR	31	0	0	77.7	-34.6	85.0
46146	ALL	DIRN.	SUR	38	0	0	64.2	-39.0	75.1
46181	ALL	DIRN.	SUR	22	0	0	80.4	-44.3	91.8
52319	ALL	DIRN.	SUR	25	0	0	81.7	-107.8	135.3

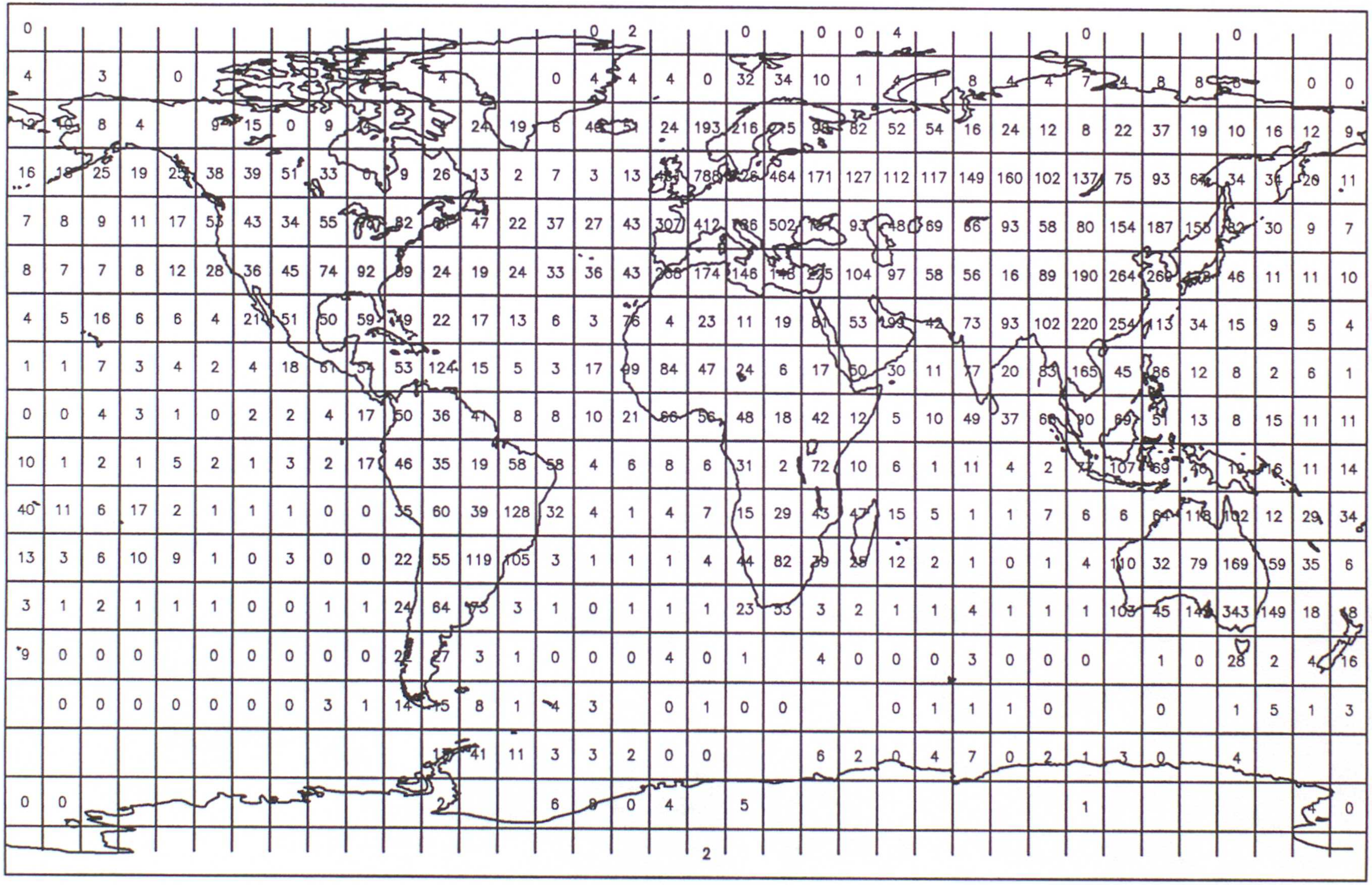
AVAILABILITY – SHIP/SYNOP – FEBRUARY 1997

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 20656

FIGURE 1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16 18 25 19 23 38 39 51 33 0 9 26 13 2 7 3 13 431 788 326 464 171 127 112 117 149 160 102 137 75 93 67 34 34 20 11
7 8 9 11 17 53 43 34 55 70 82 84 47 22 37 27 43 307 412 186 502 161 93 48 69 66 93 58 80 154 187 155 82 30 9 7
8 7 7 8 12 28 36 45 74 92 89 24 19 24 33 36 43 268 174 146 148 225 104 97 58 56 16 89 190 264 268 133 46 11 11 10
4 5 16 6 6 4 21 51 50 59 49 22 17 13 6 3 76 4 23 11 19 81 53 193 42 73 93 102 220 254 113 34 15 9 5 4
1 1 7 3 4 2 4 18 61 54 53 124 15 5 3 17 99 84 47 24 6 17 50 30 11 77 20 83 165 45 86 12 8 2 6 1
0 0 4 3 1 0 2 2 4 17 50 36 41 8 8 10 21 66 56 48 18 42 12 5 10 49 37 66 90 69 51 13 8 15 11 11
10 1 2 1 5 2 1 3 2 17 46 35 19 58 58 4 6 8 6 31 2 72 10 6 1 11 4 2 77 107 69 16 12 16 11 14
40 11 6 17 2 1 1 1 0 0 35 60 39 128 32 4 1 4 7 15 29 43 47 15 5 1 1 7 6 6 64 118 102 12 29 34
13 3 6 10 9 1 0 3 0 0 22 55 119 105 3 1 1 1 4 44 82 39 28 12 2 1 0 1 4 110 32 79 169 159 35 6
3 1 2 1 1 1 0 0 1 1 24 64 73 3 1 0 1 1 1 23 33 3 2 1 1 4 1 1 1 103 45 149 343 149 18 18
9 0 0 0 0 0 0 0 0 22 27 3 1 0 0 0 4 0 1 4 0 0 0 3 0 0 0 1 0 28 2 4 16
0 0 0 0 0 0 0 3 1 14 15 8 1 4 3 0 1 0 0 0 1 1 1 0 0 1 5 1 3
17 41 11 3 3 2 0 0 6 2 0 4 7 0 2 1 3 0 4
0 0 2 6 8 0 4 5 1 0
2

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1.¦bias¦ ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
17514	-48.3	16.7	ALL	MSLP	SUR	228	62	27	5.9	-4.6	7.5
17516	-54.6	15.7	ALL	MSLP	SUR	98	69	70	6.8	-6.1	9.1
17517	-48.7	17.2	ALL	MSLP	SUR	77	22	29	4.4	-5.8	7.3
17518	-44.6	20.3	ALL	MSLP	SUR	214	78	36	5.5	-5.7	7.9
17522	-48.1	-7.2	ALL	MSLP	SUR	224	19	8	6.7	-3.7	7.7
23950	5.4	95.9	ALL	MSLP	SUR	42	0	0	1.8	-9.6	9.8
33573	-47.8	-45.1	ALL	MSLP	SUR	151	37	25	6.8	-2.3	7.2
44603	48.5	-41.0	ALL	MSLP	SUR	248	108	44	4.3	-0.2	4.3
46903	44.5	-146.5	ALL	MSLP	SUR	232	24	10	7.7	1.9	7.9
46912	37.1	-136.6	ALL	MSLP	SUR	178	176	99	0.0	-12.1	12.1
46913	31.5	-123.6	ALL	MSLP	SUR	176	0	0	3.4	4.1	5.4
46953	36.3	-129.1	ALL	MSLP	SUR	183	172	94	0.3	-14.5	14.5
54922	-39.1	-141.7	ALL	MSLP	SUR	65	0	0	1.5	-5.0	5.2
55516	14.7	65.4	ALL	MSLP	SUR	227	0	0	1.0	-4.3	4.4
55905	-43.6	145.0	ALL	MSLP	SUR	34	31	91	0.2	-14.0	14.0
WIND SPEED											
41529	39.1	-45.8	ALL	SPEED	SUR	182	0	0	2.5	-5.2	5.8
56534	-18.3	109.3	ALL	SPEED	SUR	67	13	19	3.5	7.0	7.9
WIND DIRECTION											
46555	30.2	-137.8	ALL	DIRN.	SUR	42	0	0	52.8	-83.8	99.1
56534	-18.3	109.3	ALL	DIRN.	SUR	61	13	21	88.8	122.9	151.7

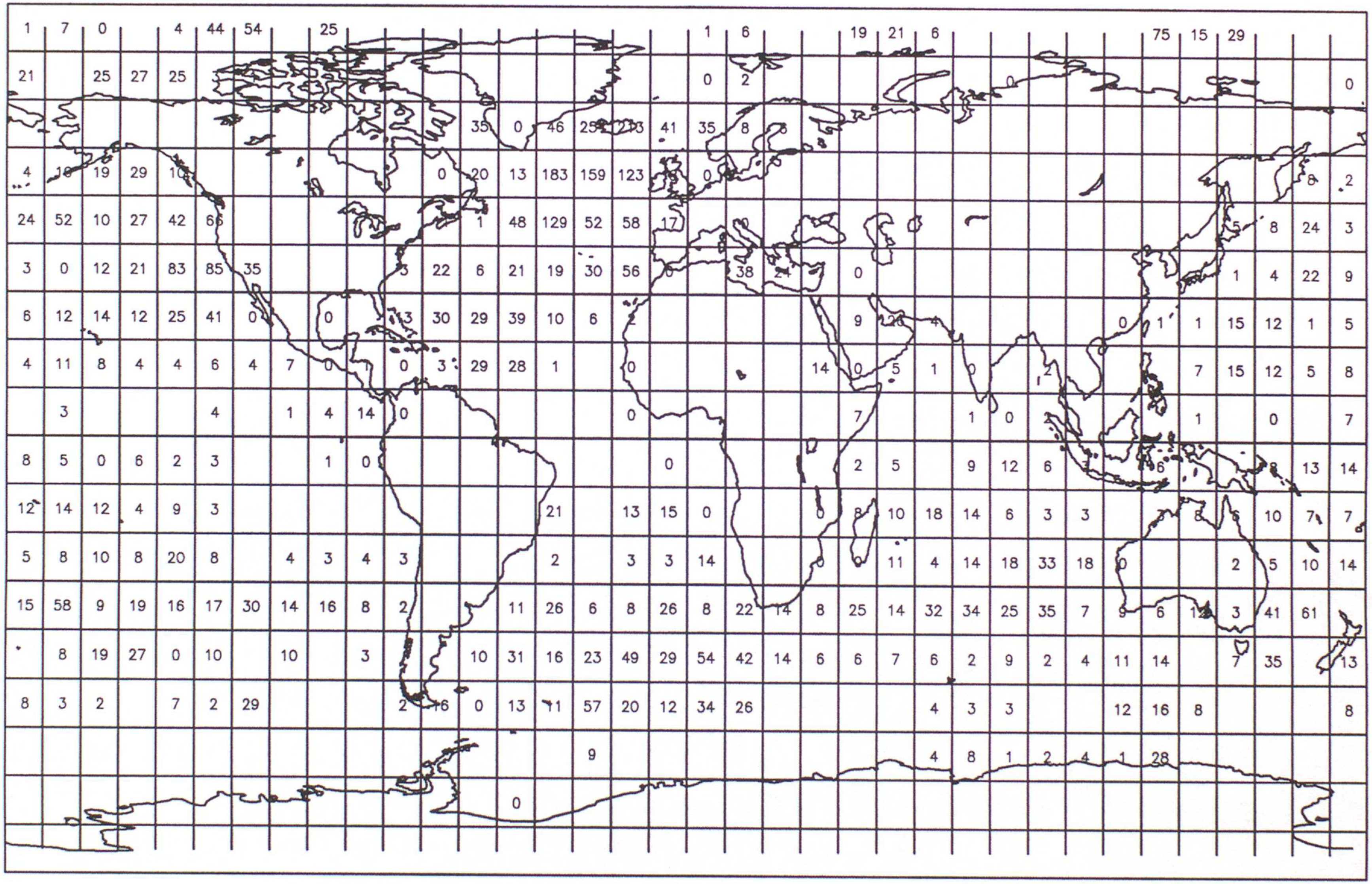
AVAILABILITY – DRIFTER – FEBRUARY 1997

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5269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21 25 27 25 0 2 0 0
35 0 46 25 213 41 35 8 8
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24 52 10 27 42 66 1 48 129 52 58 17 0 5 8 24 3
3 0 12 21 83 85 35 3 22 6 21 19 30 56 0 38 24 0 1 4 22 9
6 12 14 12 25 41 0 0 13 30 29 39 10 6 9 28 4 0 1 1 15 12 1 5
4 11 8 4 4 6 4 7 0 1 0 3 29 28 1 0 14 0 5 1 0 2 7 15 12 5 8
3 4 1 4 14 0 0 7 1 0 2 1 0 7
8 5 0 6 2 3 1 0 0 2 5 9 12 6 6 8 13 14
12 14 12 4 9 3 21 13 15 0 0 8 10 18 14 6 3 3 7 8 6 10 7 7
5 8 10 8 20 8 4 3 4 3 2 3 3 14 0 0 11 4 14 18 33 18 0 2 5 10 14
15 58 9 19 16 17 30 14 16 8 2 11 26 6 8 26 8 22 14 8 25 14 32 34 25 35 7 9 6 12 3 41 61
8 19 27 0 10 10 3 10 31 16 23 49 29 54 42 14 6 6 7 6 2 9 2 4 11 14 7 35 13
8 3 2 7 2 29 2 16 0 13 11 57 20 12 34 26 4 3 3 12 16 8 8
9 4 8 1 2 4 1 28
0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.¦bias¦	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	98	0	0	0	1.0	4.7	4.8
60468	35.6N	6.2E	1052	S8	98	98	100	0	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	91	91	100	0	0.0	0.0	0.0
60535	34.7N	3.3E	1144	S8	67	2	3	0	0.9	-6.7	6.8
60571	31.6N	2.2W	773	S8	98	1	1	2	1.3	-4.7	4.9
60670	24.6N	9.5E	1054	S8	97	3	3	96	1.7	8.7	8.9
63330	13.5N	39.5E	2212	MS	43	0	0	0	1.3	-6.3	6.4
63333	11.1N	39.7E	1916	MS	59	0	0	0	1.2	7.1	7.2
63402	7.7N	36.8E	1577	MS	39	0	0	0	1.2	-10.0	10.1
63451	8.7N	39.0E	1876	MS	35	0	0	3	1.6	-4.4	4.7
63453	8.8N	39.8E	1062	S	36	2	6	0	1.6	12.4	12.5
63478	5.1N	44.6E	320	MS	44	0	0	0	1.0	6.8	6.9
68014	19.6S	18.1E	1411	S8	80	0	0	70	1.3	-5.2	5.4
68396	26.5S	31.3E	641	S8	44	0	0	0	1.1	4.7	4.8
68442	29.1S	26.3E	1354	S8	72	0	0	0	1.0	-4.7	4.8
68488	28.4S	31.1E	1279	S8	48	48	100	0	0.0	0.0	0.0
68752	32.8S	27.4E	524	S8	79	0	0	0	1.0	-7.3	7.4

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
24382	66.4N	143.2E	196	MS	55	0	0	44	2.6	6.7	7.2
24671	63.9N	135.9E	402	MS	64	3	5	0	3.6	10.0	10.6
28984	52.9N	70.2E	395	MS	109	0	0	99	2.0	10.3	10.5
30320	56.9N	105.7E	669	MS	51	51	100	0	0.0	0.0	0.0
30554	54.5N	113.6E	995	MS	52	0	0	63	1.1	9.6	9.7
30764	52.6N	115.2E	646	MS	47	0	0	2	1.5	-4.5	4.7
30859	51.1N	114.5E	681	MS	50	0	0	2	1.8	-4.2	4.6
30967	49.9N	115.8E	623	MS	48	0	0	52	1.9	-4.3	4.7
31253	54.7N	128.9E	357	S	56	0	0	30	3.0	-4.1	5.1
35173	51.6N	69.8E	620	MS	46	46	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	88	1	1	1	1.4	8.3	8.4
40710	37.9N	47.5E	-9999	M	85	16	19	58	5.0	5.4	7.4
40743	36.2N	57.7E	941	MS	107	1	1	31	1.9	-4.7	5.1
40762	35.3N	59.2E	1333	MS	105	35	33	0	1.2	-13.7	13.8
40763	35.2N	58.5E	1060	MS	47	0	0	2	1.5	-5.9	6.1
40783	32.4N	49.7E	1972	MS	80	8	10	3	2.0	-6.4	6.7
40789	33.8N	55.1E	921	MS	73	0	0	1	2.0	9.2	9.4
40798	32.3N	50.9E	1991	MS	90	2	2	2	1.8	-8.2	8.4
40836	30.8N	51.7E	1880	MS	87	0	0	1	1.6	9.8	9.9
40859	29.0N	53.7E	1383	MS	82	2	2	1	1.3	9.9	10.0
41254	23.1N	57.7E	1755	S8	81	81	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	22	1	5	45	1.5	6.9	7.1
44212	50.0N	92.1E	939	MS	86	2	2	21	3.2	6.3	7.1
44477	27.0N	87.4E	1445	S8	63	63	100	0	0.0	0.0	0.0
47022	40.8N	128.2E	1206	S	92	3	3	37	2.1	4.2	4.7
50548	49.2N	123.7E	289	M	61	13	21	64	5.7	5.3	7.8
51334	44.6N	82.9E	321	M	109	2	2	67	2.9	8.0	8.5
51379	44.0N	89.6E	794	M	108	0	0	68	2.1	6.5	6.8
52602	38.8N	93.4E	2734	S	109	1	1	1	1.6	-5.6	5.8
52866	36.6N	101.8E	2262	S	109	0	0	0	1.5	-4.5	4.7
53083	44.6N	114.2E	1183	M	110	0	0	35	2.7	6.4	6.9
53352	41.7N	110.4E	1377	M	109	0	0	28	2.8	4.6	5.4
54386	41.4N	128.2E	1018	M	108	0	0	18	3.1	4.7	5.6
56444	28.5N	98.9E	3488	S	110	110	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	99	0	0	1	2.2	7.8	8.1

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	28	0	0	0	1.0	-5.8	5.9
80431	9.9N	67.3W	429	MS	92	0	0	24	2.0	-4.2	4.7
82704	7.6S	72.7W	170	MS	69	0	0	1	2.9	-4.0	4.9
82975	9.1S	44.1W	331	S	31	0	0	0	1.0	4.4	4.5
83214	10.3S	54.9W	285	MS	45	0	0	0	1.9	-6.1	6.4
83235	12.4S	46.4W	660	MS	67	0	0	1	1.4	6.3	6.5
83319	14.7S	52.4W	315	MS	44	0	0	2	2.1	-4.1	4.6
83332	14.1S	46.4W	950	MS	71	14	20	0	1.0	13.2	13.2
83376	15.9S	49.0W	730	MS	72	0	0	47	1.4	-4.3	4.5
83408	14.3S	43.8W	556	MS	55	0	0	0	1.1	10.5	10.6
83423	16.7S	49.3W	729	MS	73	1	1	3	1.5	-5.7	5.9
83488	17.8S	42.9W	1097	MS	75	75	100	0	0.0	0.0	0.0
83531	18.6S	46.5W	896	MS	70	0	0	0	1.1	-6.8	6.9
83538	18.2S	43.6W	1297	S	73	3	4	4	1.1	-11.6	11.7
83543	18.8S	41.9W	277	MS	44	0	0	2	4.7	4.1	6.2
83587	19.9S	43.9W	850	MS	73	0	0	1	1.1	-8.3	8.4
83704	22.3S	53.9W	369	MS	55	0	0	82	4.3	-7.4	8.6
83773	23.1S	48.9W	793	S	45	0	0	2	1.6	-4.7	5.0
83836	25.5S	50.6W	837	MS	62	0	0	2	1.4	-4.6	4.8
83916	28.2S	51.5W	806	MS	60	0	0	0	1.1	-4.9	5.0
84123	0.9S	78.6W	2785	S	26	3	12	100	0.8	13.8	13.8
84425	5.9S	76.1W	184	MS	75	0	0	4	2.0	5.0	5.4
84455	6.5S	76.4W	282	MS	62	0	0	0	2.0	7.4	7.7
84472	7.1S	78.5W	2622	S	43	0	0	0	1.2	-6.0	6.1
84542	9.4S	77.6W	2760	S	32	0	0	3	1.8	5.2	5.5
84686	13.6S	72.0W	3249	S	102	1	1	3	1.8	-5.5	5.8
84782	18.1S	70.3W	469	M	91	0	0	0	1.3	7.4	7.5
85264	18.5S	64.1W	1998	S	43	6	14	0	5.3	-5.8	7.9
85312	19.8S	63.9W	992	S	34	2	6	47	2.2	-4.6	5.1
85406	18.3S	70.3W	58	M	108	0	0	7	1.3	5.6	5.7
85442	23.4S	70.4W	135	M	107	0	0	0	1.1	4.6	4.7
85460	26.3S	70.6W	30	M	37	0	0	0	1.1	4.1	4.2
85470	27.3S	70.4W	291	M	80	0	0	4	2.2	4.1	4.7
85488	29.9S	71.2W	142	M	109	0	0	9	1.4	4.8	5.0

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71094	66.7N	61.4W	722	MS	94	0	0	20	2.2	-4.2	4.7
71421	51.9N	63.3W	561	MS	109	0	0	21	1.5	-4.1	4.4
71882	51.0N	118.2W	443	MS	108	1	1	44	4.2	4.4	6.1
71917	80.0N	85.9W	10	MS	108	9	8	64	3.3	9.6	10.2
76118	30.4N	109.7W	1040	MS	27	0	0	0	1.0	-12.4	12.4
76160	29.1N	111.0W	211	MS	25	0	0	0	1.3	-4.2	4.4
76539	22.1N	101.0W	1870	MS	66	0	0	5	1.2	-4.4	4.6
76625	20.6N	100.4W	1813	MS	62	0	0	2	1.0	-8.2	8.3
76632	20.1N	98.7W	2417	MS	28	0	0	93	0.9	-6.0	6.1
76634	20.1N	98.4W	2135	MS	55	0	0	91	1.7	-5.5	5.8
76658	19.2N	103.7W	494	MS	32	0	0	0	0.9	5.2	5.3
76698	19.6N	88.0W	20	MS	61	0	0	2	1.5	-5.2	5.4
76750	18.5N	88.3W	9	MS	68	0	0	1	1.2	-4.5	4.7
76762	17.5N	99.5W	1865	MS	62	62	100	0	0.0	0.0	0.0

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	MS	52	1	2	2	1.9	-4.9	5.3

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	81	0	0	6	2.2	-5.2	5.6
02045	67.8N	20.4E	408	M	44	44	100	0	0.0	0.0	0.0
06720	46.2N	7.3E	481	MS	110	0	0	24	3.5	4.3	5.5
11024	48.4N	15.4E	860	S8	107	26	24	0	0.8	-13.4	13.4
16020	46.5N	11.3E	1461	MS	94	94	100	0	0.0	0.0	0.0
16134	44.2N	10.7E	2173	S8	94	4	4	3	1.8	-4.4	4.8
16227	41.9N	13.6E	655	MS	110	107	97	0	0.1	-14.6	14.6
16549	39.1N	8.3E	12	MS	110	0	0	0	1.3	-4.9	5.1
16614	40.4N	21.3E	604	MS	82	2	2	13	1.1	-7.3	7.4

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89324	80.0S	120.0W	1530	S	83	0	0	8	3.5	-4.5	5.7
89744	74.0S	43.0E	3353	S	68	0	0	4	2.2	6.6	7.0
89860	74.2S	160.3E	1772	S	76	0	0	0	2.3	-7.9	8.2

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

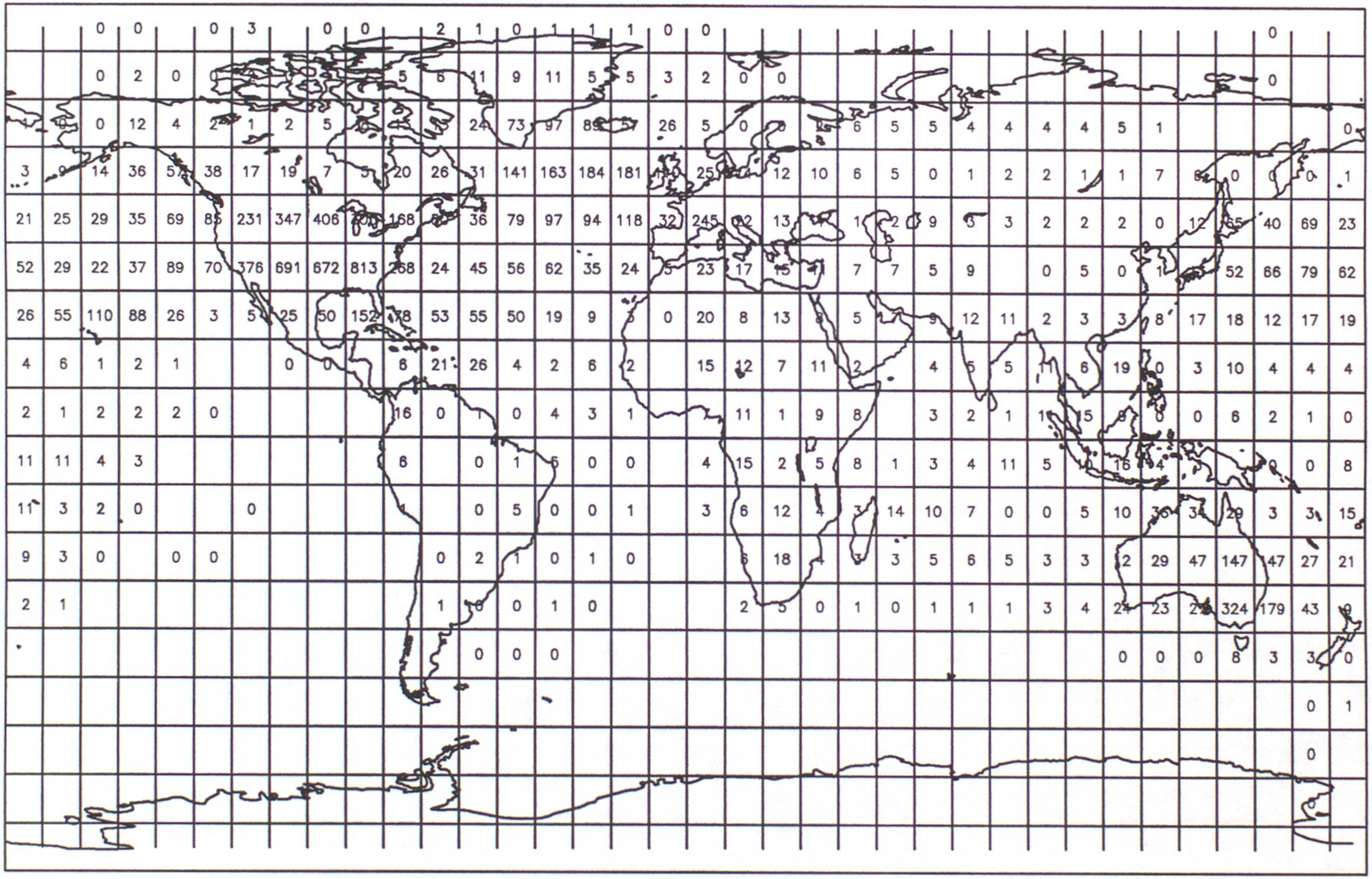
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	98	1	1	1.3	0.7	97	0	3	2	7.1	0.5
AAL	4698	0	2	2.0	0.2	4700	0	2	0	8.8	0.7
AAR	1626	1	2	2.0	0.1	1632	0	3	0	9.0	0.1
ACA	1493	1	2	2.1	0.4	1550	0	1	0	7.9	0.3
ACI	46	2	2	2.1	1.3	44	0	0	0	8.6	0.4
AEA	570	1	100	2.5	0.3	560	0	4	0	10.3	0.3
AEL	805	0	3	2.1	-0.4	814	0	4	0	9.7	0.8
AEY	174	1	2	1.6	0.7	172	0	5	0	10.0	0.3
AFL	225	0	4	2.5	1.2	226	0	5	1	8.6	0.6
AFR	1584	1	6	2.0	0.1	1619	0	5	0	8.4	0.7
AIC	26	0	0	2.5	-0.3	26	0	0	0	10.2	1.5
AIH	162	2	4	1.9	0.3	158	0	4	0	8.2	-0.2
AJM	52	0	6	2.1	-0.4	54	0	4	0	9.2	-0.2
AME	25	0	0	2.2	-0.7	25	0	0	0	8.9	1.7
AMT	302	1	7	2.7	0.6	302	1	7	0	12.4	0.2
AMX	221	1	3	2.2	-0.3	222	0	3	0	9.6	0.3
ANA	899	0	1	1.9	0.0	902	0	2	0	8.5	0.2
ANZ	2394	3	5	1.9	0.2	2351	0	3	0	8.5	1.8
AOM	648	1	2	1.9	1.1	655	0	4	0	9.5	0.4
ARP	74	1	3	2.5	1.1	71	0	3	1	8.7	2.6
ATN	82	5	21	2.9	-1.8	80	0	98	0	21.0	7.8
AUA	65	0	3	2.1	-0.3	67	0	3	0	8.9	-1.2
AVA	297	1	5	2.2	0.2	299	1	5	0	10.2	0.3
AVN	53	0	0	1.5	0.4	53	0	8	6	8.4	1.0
AXA	78	1	3	2.7	1.4	77	0	1	0	9.3	2.1
AZA	489	0	8	2.4	0.8	502	1	6	0	8.5	0.8
BAL	469	0	13	2.0	-0.4	480	0	12	0	8.6	0.7
BAW	1646	1	4	2.0	0.0	1660	0	5	0	8.8	0.9
BBB	33	0	0	1.5	0.1	33	0	0	0	8.7	0.2
BBC	28	0	0	2.7	1.4	28	0	4	0	8.2	0.3
BOE	23	0	0	2.9	1.2	25	0	8	0	10.2	-0.4
BWA	379	1	100	2.3	1.6	381	0	3	0	9.2	0.6
CAL	1379	1	2	2.1	0.1	1383	0	2	0	9.0	0.4
CCA	119	3	70	3.0	0.2	121	0	93	0	13.7	-0.7
CDN	1743	0	1	2.1	0.2	1751	0	2	0	9.2	0.2
CES	204	0	2	2.2	0.3	202	2	4	0	11.0	-1.1
CFC	26	4	27	2.2	0.1	27	0	26	0	8.4	-0.6
CFG	1066	1	3	2.0	-0.8	1086	0	2	0	9.0	0.0
CKS	234	0	7	3.3	1.1	237	1	11	0	14.6	0.1
CKT	160	1	6	1.7	0.5	157	1	5	0	8.5	-0.5
CLX	291	0	1	1.6	-0.6	292	0	1	0	7.3	0.8
CMI	679	2	3	2.3	1.3	679	0	2	0	8.1	0.7
CMM	207	0	1	2.0	0.1	210	0	1	0	9.5	0.2
COA	759	1	3	2.2	0.7	766	1	3	0	9.8	0.6
CPA	38	0	0	1.4	0.0	41	0	0	0	7.2	0.1
CRL	988	2	4	1.9	0.3	996	0	4	0	9.0	0.6
CTM	32	0	6	2.1	0.3	32	0	13	0	13.3	1.0
CUB	357	0	34	2.2	1.2	359	0	100	0	12.6	0.8
DAF	23	0	0	2.1	0.2	23	0	0	0	6.3	0.7
DAL	4746	0	3	2.3	0.7	4390	0	2	0	9.7	0.6
DHL	406	3	100	3.9	-2.2	404	0	100	0	12.7	1.1
DLH	3177	0	8	2.0	0.5	3212	0	9	1	8.2	1.0
DOA	82	0	4	2.3	-0.6	83	0	5	0	10.8	-2.3
EIA	100	2	2	2.2	0.8	101	0	4	1	8.6	2.6
ELN	36	0	11	2.4	1.2	37	0	51	0	21.6	2.5
ELY	131	0	8	1.6	0.3	134	0	9	0	9.5	0.1
EVA	602	1	2	2.1	-0.1	625	0	2	0	8.5	0.5
EWW	131	0	38	2.7	1.3	131	1	100	0	17.1	3.9
FDX	1182	1	3	2.1	0.5	1191	0	5	0	9.6	0.5

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FIN	340	0	2	1.7	0.3	339	0	3	0	7.8	0.6
FJI	476	5	7	1.8	0.9	456	0	2	0	8.3	1.7
FOM	88	1	2	2.8	1.3	88	0	100	0	12.3	2.5
GAF	29	3	7	2.9	1.0	29	0	0	0	9.7	-0.5
GIA	148	0	1	2.2	0.6	148	0	1	1	6.8	1.0
HAL	1547	1	2	2.2	0.3	1546	1	5	0	11.7	1.0
HLF	206	1	1	1.8	-0.6	189	1	4	0	12.1	-0.4
HRH	49	2	12	2.3	0.1	48	0	6	0	8.6	2.0
HZM	20	0	0	2.0	0.2	20	0	5	0	15.3	-2.9
IBE	2699	1	21	2.1	0.4	2699	0	22	0	10.7	0.7
ICE	579	0	1	1.5	-0.1	567	0	2	1	6.0	0.0
JAL	5394	1	2	2.1	0.5	5416	0	2	0	8.7	0.2
JAS	74	1	3	2.0	1.4	74	1	1	0	7.2	0.6
JAZ	95	1	5	2.6	1.6	95	0	1	0	7.4	0.0
KAL	2638	1	2	2.1	-0.1	2641	0	3	0	9.8	0.1
KLM	2356	0	1	1.9	0.3	2371	0	2	0	8.5	0.5
LDA	243	1	9	2.2	-1.1	244	1	8	0	9.5	0.6
LDI	384	1	17	2.2	-1.2	394	0	16	0	8.4	0.2
LIB	448	0	4	1.9	1.0	453	0	6	0	9.0	0.5
LKR	29	0	3	2.2	1.0	28	0	7	0	10.2	-0.1
LOT	194	0	1	1.9	-0.7	199	1	3	0	8.4	0.0
LTU	822	0	3	1.9	0.1	792	0	5	0	10.1	0.6
MAH	26	0	12	3.5	1.2	27	7	11	0	10.5	0.1
MAS	277	2	3	2.3	-0.4	291	0	5	0	11.0	0.4
MDA	151	0	0	1.7	0.2	153	0	3	0	8.9	-0.7
MON	33	0	0	1.3	-0.2	33	0	0	0	8.0	1.6
MPH	782	1	2	1.9	-0.6	790	0	3	0	9.1	0.4
NCA	503	0	1	2.0	0.4	503	0	2	0	9.1	-0.1
NWA	8325	0	2	2.2	0.8	8343	0	2	0	9.0	0.3
PAC	98	0	0	2.2	0.8	103	0	1	0	8.7	2.9
PAL	926	0	3	2.1	0.0	936	0	4	0	9.8	0.3
PAO	202	1	6	1.6	0.3	197	0	6	2	7.1	0.9
QFA	1244	1	3	1.7	0.5	1235	0	3	0	7.3	1.6
RAF	159	1	1	2.0	1.2	157	0	3	0	8.8	0.7
RAM	53	0	9	3.0	-1.3	53	0	9	0	11.8	1.5
RCH	477	1	97	3.0	0.7	486	0	97	0	14.5	1.4
RJA	44	2	5	2.8	0.9	43	0	7	5	10.0	-2.2
RKA	128	2	5	1.6	-0.4	128	0	4	0	9.0	0.0
RRR	106	1	24	2.2	-0.6	108	2	25	0	10.8	1.1
SAA	252	0	2	2.0	-0.5	250	0	5	0	9.5	0.8
SAB	32	0	3	1.9	-0.2	33	0	0	0	9.2	3.6
SAS	896	0	2	2.0	0.3	903	0	3	0	7.9	0.3
SCX	25	4	4	1.5	0.0	25	0	4	0	11.0	-1.1
SEU	179	1	2	1.9	0.0	181	0	3	0	8.5	0.4
SIA	1073	1	3	2.1	-0.6	1086	0	3	0	9.7	-0.2
SLR	79	0	19	1.4	-0.6	82	0	17	0	8.8	0.7
SOL	51	4	4	1.2	0.6	50	0	8	2	11.5	3.3
SPP	161	1	12	1.7	0.0	152	0	13	0	8.0	-0.5
SVA	98	0	4	2.5	0.9	104	0	100	0	15.3	3.1
SWR	166	1	5	2.4	0.5	168	0	4	0	9.1	0.2
TAP	392	1	4	2.3	0.2	392	0	4	0	9.4	0.4
TEJ	72	1	19	2.4	0.4	73	0	18	0	9.8	2.0
THA	229	0	3	2.3	-0.3	234	0	3	0	10.0	-1.0
THY	22	0	0	2.4	0.1	22	0	5	0	10.3	-0.5
TOW	53	0	0	1.6	0.3	56	0	2	0	8.5	0.4
TWA	1291	0	2	2.3	0.1	1298	0	4	0	9.6	1.1
UAL	10514	1	3	2.3	-0.1	10584	0	2	0	9.2	0.5
ULE	200	1	1	1.8	0.3	199	0	3	0	9.3	0.9
UPS	905	1	12	1.9	0.4	917	0	13	0	9.0	0.9

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
USA	379	1	2	2.0	-0.1	374	0	3	0	9.9	1.0
VIR	226	0	4	1.8	-0.5	231	0	5	0	8.8	1.9
VRG	65	5	6	2.6	0.8	65	3	6	0	12.0	2.4
VSP	140	0	4	2.2	0.4	144	1	3	1	8.7	0.1
WOA	63	0	2	2.4	1.1	63	2	2	0	9.6	1.0
AF	33	0	0	1.3	-0.2	32	0	0	0	7.6	1.8
AN	22473	0	4	0.9	0.1	22288	0	4	0	6.0	1.0
BA	19572	0	8	1.4	0.5	19516	0	11	0	7.1	1.3
DL	88791	0	2	1.7	0.2	88791	0	8	0	6.9	1.3
FJ	27	4	15	2.1	1.1	25	0	8	0	6.9	2.9
IT	354	0	1	0.9	0.0	354	0	1	0	6.9	1.3
KL	10546	0	7	1.4	0.3	10544	0	7	0	7.4	1.3
LH	3793	0	2	1.6	0.5	3764	0	2	0	7.3	1.1
MK	4997	0	0	1.3	0.8	4982	0	1	0	7.3	1.3
NW	35418	0	2	1.7	0.3	35418	0	4	0	6.5	1.1
QF	2995	0	1	0.9	0.3	2994	0	1	0	6.3	0.6
SA	3471	0	1	1.3	0.8	3471	0	1	0	6.9	1.1
N	399	1	62	2.7	0.9	412	0	5	0	10.9	1.0

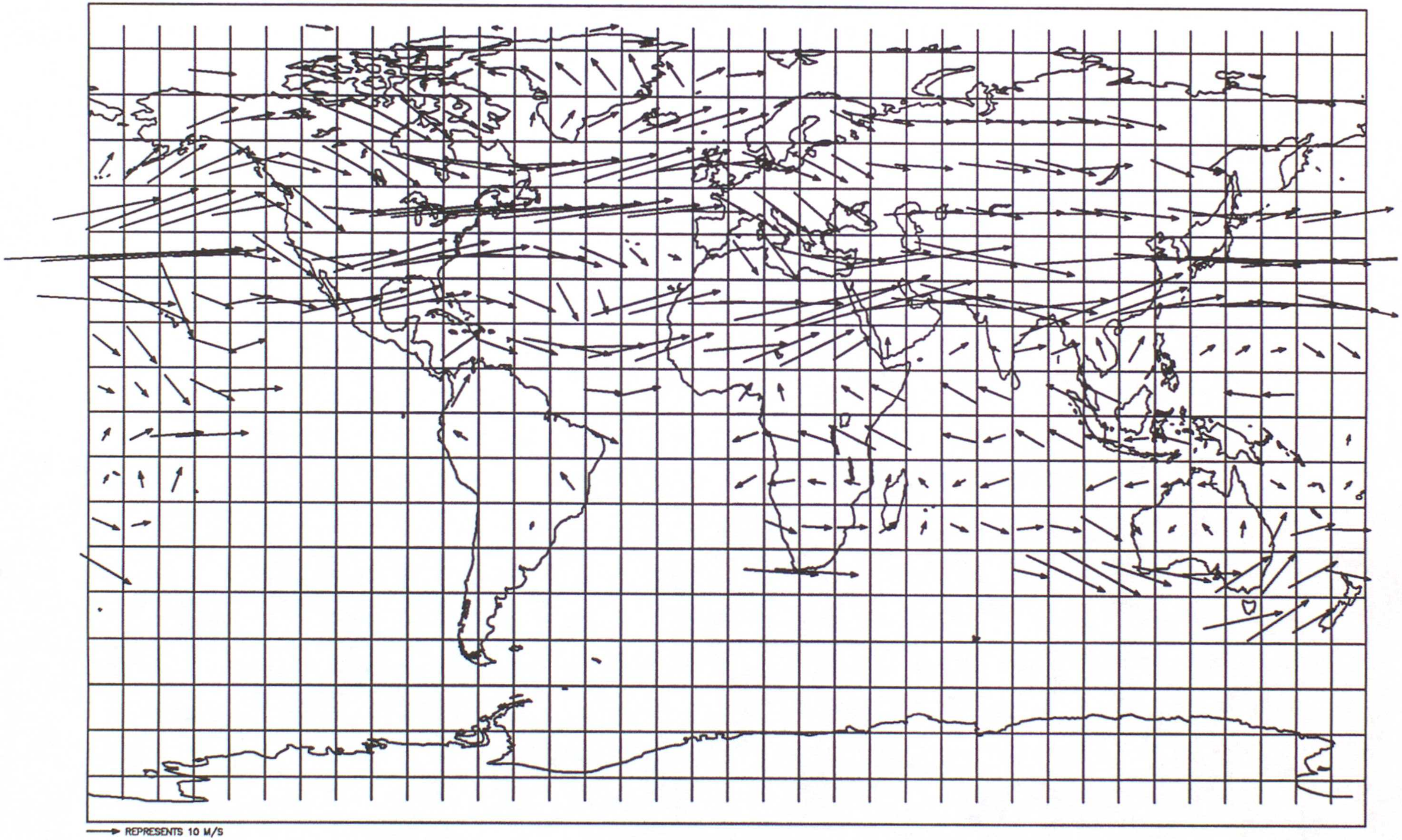
MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA
FEBRUARY 1997
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3



		0	0		0	3		0	0		2	1	0	1	1	1	0	0															0		
		0	2	0	0					5	6	11	9	11	5	5	3	2	0	0													0		
1	0	0	12	4	2	1	2	5	0	15	[illegible]	24	73	97	89	57	26	5	0	0	[illegible]	6	5	5	4	4	4	4	5	1					0
3	9	14	36	57	38	17	19	7	5	20	26	31	141	163	184	181	[illegible]	25	[illegible]	12	10	6	5	0	1	2	2	1	1	7	6	0	0	0	1
21	25	29	35	69	85	231	347	406	[illegible]	168	[illegible]	36	79	97	94	118	32	245	82	13	[illegible]	1	2	9	3	3	2	2	2	0	12	65	40	69	23
52	29	22	37	89	70	376	691	672	813	268	24	45	56	62	35	24	5	23	17	15	41	7	7	5	9		0	5	0	1		52	66	79	62
26	55	110	88	26	3	5	25	50	152	78	53	55	50	19	9	3	0	20	8	13	8	5	7	9	12	11	2	3	3	8	17	18	12	17	19
4	6	1	2	1			0	0		6	21	26	4	2	6	2		15	12	7	11	2		4	5	5	11	6	19	0	3	10	4	4	4
2	1	2	2	2	0					16	0	1	0	4	3	1			11	1	9	8		3	2	1	1	15	8	0	0	6	2	1	0
11	11	4	3							6		0	1	5	0	0		4	15	2	5	8	1	3	4	11	5	10	16	4			0	0	8
11	3	2	0			0				1		0	5	0	0	1		3	6	12	4	3	14	10	7	0	0	5	10	36	34	29	3	3	15
9	3	0		0	0						0	2	1	0	1	0			6	18	4	3	3	5	6	5	3	3	12	29	47	147	147	27	21
2	1										1	0	0	1	0				2	5	0	1	0	1	1	1	3	4	24	23	22	324	179	43	9
												0	0	0															0	0	0	8	3	3	0
																																		0	1
																																		0	

AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA FIGURE 4
FEBRUARY 1997
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



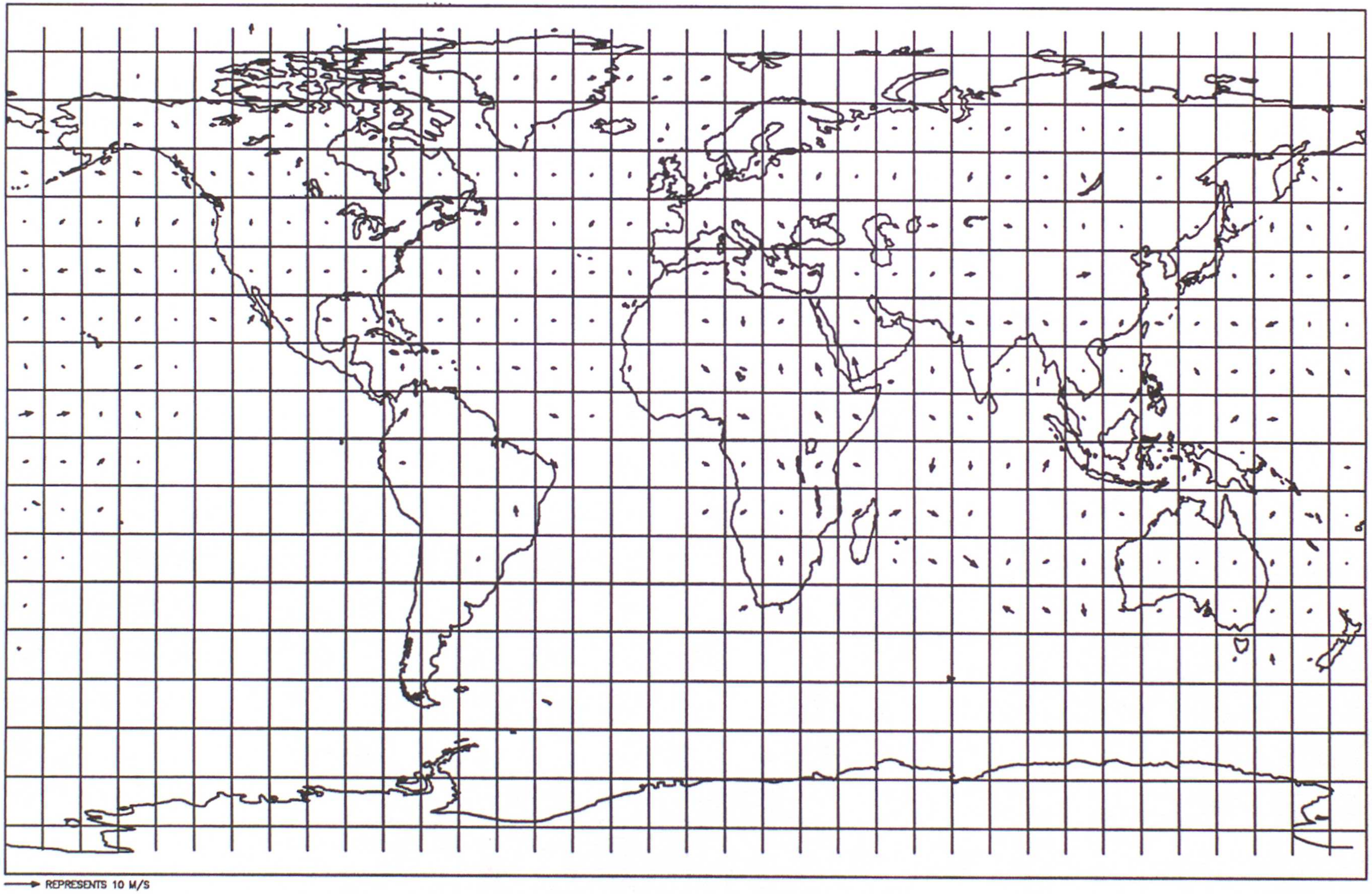
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

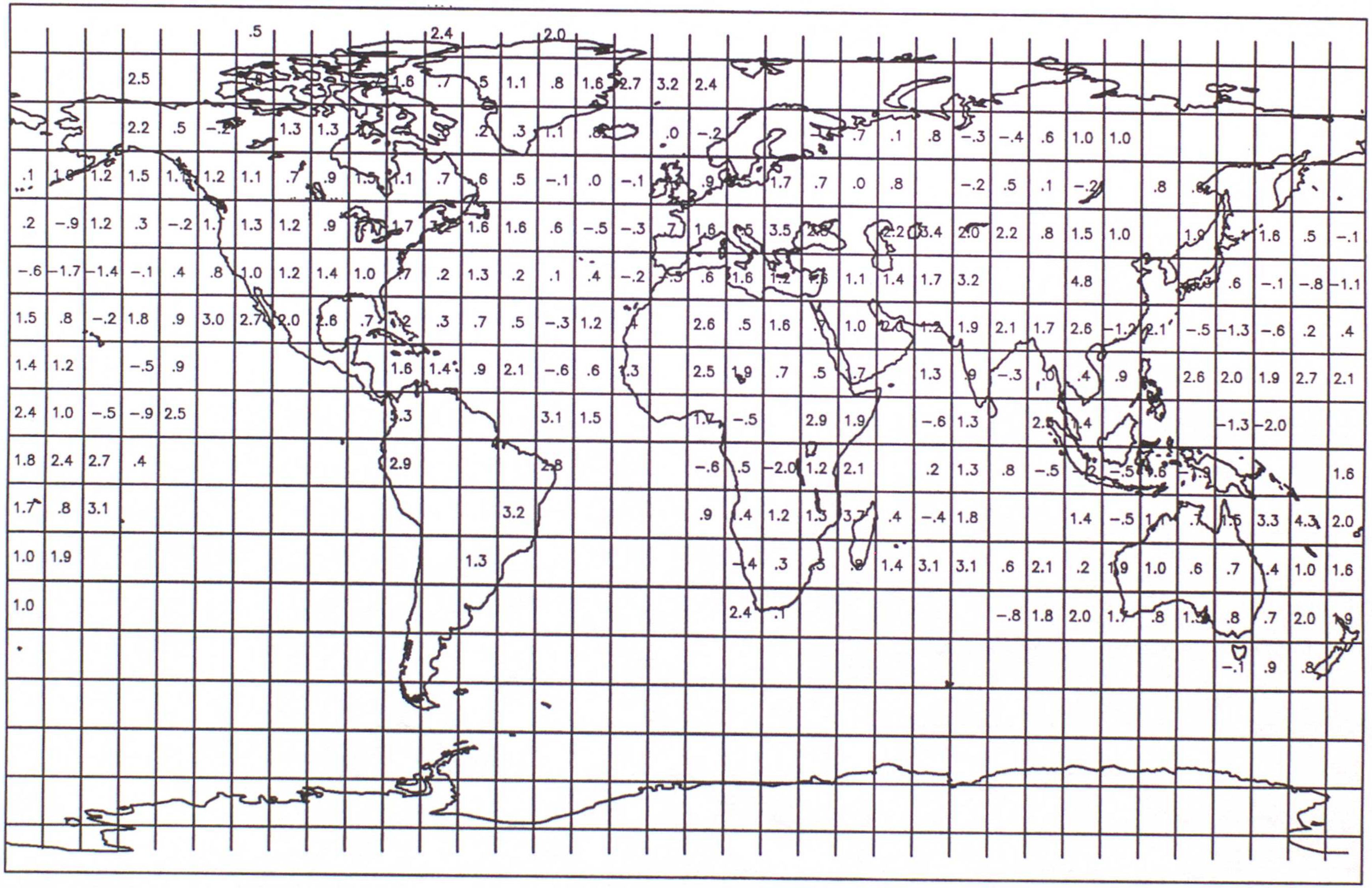
FEBRUARY 1997

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
FEBRUARY 1997
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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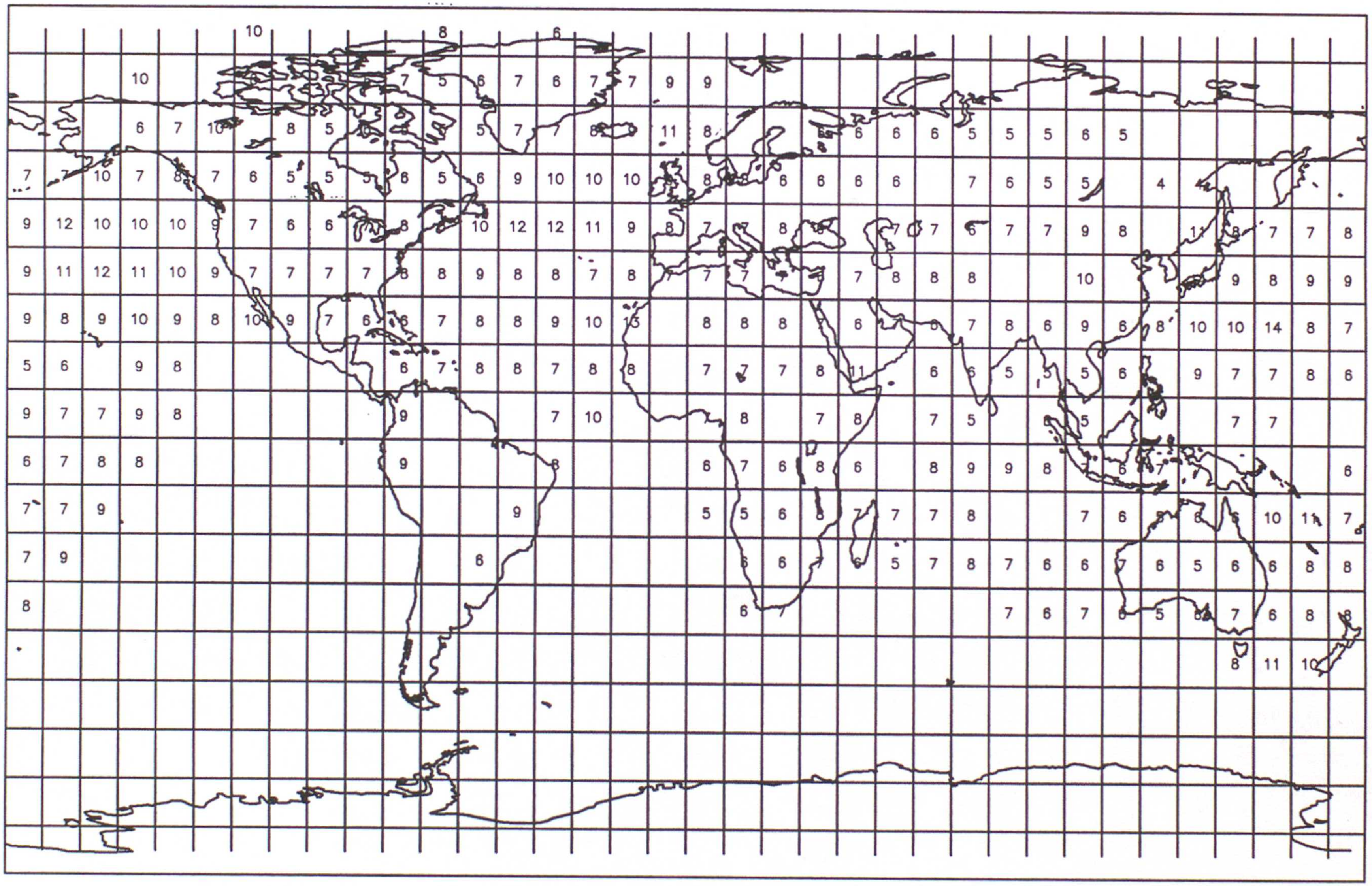
2.5 .8 1.6 .7 .5 1.1 .8 1.6 2.7 3.2 2.4
2.2 .5 –.2 1.3 1.3 .8 .2 .3 1.1 .8 .0 –.2 .7 .1 .8 –.3 –.4 .6 1.0 1.0
.1 1.6 1.2 1.5 1.1 1.2 1.1 .7 .9 1.5 1.1 .7 .6 .5 –.1 .0 –.1 .9 1.7 .7 .0 .8 –.2 .5 .1 –.2 .8 .8
.2 –.9 1.2 .3 –.2 1.1 1.3 1.2 .9 1.7 1.7 1.6 1.6 .6 –.5 –.3 .7 1.6 .5 3.5 2.8 2.2 3.4 2.0 2.2 .8 1.5 1.0 1.9 1.6 .5 –.1
–.6 –1.7 –1.4 –.1 .4 .8 1.0 1.2 1.4 1.0 .7 .2 1.3 .2 .1 .4 –.2 .3 .6 1.6 1.2 1.6 1.1 1.4 1.7 3.2 4.8 .3 .6 –.1 –.8 –1.1
1.5 .8 –.2 1.8 .9 3.0 2.7 2.0 2.6 .7 .2 .3 .7 .5 –.3 1.2 .4 2.6 .5 1.6 .7 1.0 2.0 1.2 1.9 2.1 1.7 2.6 –1.2 2.1 –.5 –1.3 –.6 .2 .4
1.4 1.2 –.5 .9 1.6 1.4 .9 2.1 –.6 .6 1.3 2.5 1.9 .7 .5 .7 1.3 .9 –.3 .0 .4 .9 2.6 2.0 1.9 2.7 2.1
2.4 1.0 –.5 –.9 2.5 .3 3.1 1.5 1.7 –.5 2.9 1.9 –.6 1.3 2.5 .4 –1.3 –2.0
1.8 2.4 2.7 .4 2.9 2.8 –.6 .5 –2.0 1.2 2.1 .2 1.3 .8 –.5 .2 –.5 1.6 .9 1.6
1.7 .8 3.1 3.2 .9 .4 1.2 1.3 3.7 .4 –.4 1.8 1.4 –.5 1.1 .7 1.5 3.3 4.3 2.0
1.0 1.9 1.3 –.4 .3 .5 .9 1.4 3.1 3.1 .6 2.1 .2 1.9 1.0 .6 .7 .4 1.0 1.6
1.0 2.4 .1 –.8 1.8 2.0 1.7 .8 1.5 .8 .7 2.0 1.9
–.1 .9 .8

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
FEBRUARY 1997
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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6 7 10 8 5 6 6 6 5 7 7 8 11 8 6 6 6 6 5 5 5 6 5
7 7 10 7 8 7 6 5 5 5 6 5 6 9 10 10 10 8 8 6 6 6 6 7 6 5 5 4 4
9 12 10 10 10 9 7 6 6 8 10 12 12 11 9 8 7 7 8 6 7 7 6 7 7 9 8 11 8 7 7 8
9 11 12 11 10 9 7 7 7 7 8 8 9 8 8 7 8 7 7 7 7 6 7 8 8 8 10 9 8 9 9
9 8 9 10 9 8 10 9 7 6 6 7 8 8 9 10 13 8 8 8 7 6 6 7 8 6 9 6 8 10 10 14 8 7
5 6 9 8 6 7 8 8 7 8 8 7 7 7 8 11 6 6 5 5 5 6 9 7 7 8 6
9 7 7 9 8 9 7 10 8 7 8 7 5 6 5 7 7
6 7 8 8 9 8 6 7 6 8 6 8 9 9 8 7 6 7 6
7 7 9 9 5 5 6 6 7 7 7 8 7 6 6 6 6 10 11 7
7 9 6 6 6 7 6 5 7 8 7 6 6 7 6 5 6 6 8 8
8 6 7 7 6 7 6 5 6 7 6 8 8
8 11 10

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
25563	00	Z	150	65/ 178	16	0	28.2	124.7	127.8	4
34247	12	Z	30	50/ 41	26	0	38.8	196.5	200.3	4
37018	00	Z	250	44/ 39	17	0	21.4	101.7	103.9	7
37985	00	Z	70	39/ 49	9	1	142.2	133.7	195.2	11
42027	12	Z	300	34/ 75	21	0	54.7	66.2	85.9	4
42101	00	Z	250	30/ 76	10	1	61.2	-61.1	86.5	6
42182	00	Z	150	29/ 77	27	0	85.8	-64.3	107.2	6
42314	00	Z	300	27/ 95	16	0	56.3	-41.4	69.9	4
42361	12	Z	70	26/ 78	10	1	158.0	20.3	159.3	4
42369	12	Z	70	27/ 81	16	0	185.8	63.3	196.3	8
42379	00	Z	150	27/ 83	22	1	104.7	48.5	115.4	9
42379	12	Z	30	27/ 83	20	2	177.8	194.0	263.2	8
42397	00	Z	100	27/ 88	19	0	115.2	29.4	118.9	5
42410	12	Z	400	26/ 92	20	0	54.2	-26.5	60.4	4
42492	00	Z	30	26/ 85	10	1	178.4	88.7	199.3	8
42647	00	Z	100	23/ 73	15	0	104.2	-66.9	123.9	8
42647	12	Z	30	23/ 73	16	1	119.4	286.2	310.1	5
42667	00	Z	50	23/ 77	16	0	130.5	-133.7	186.8	9
42667	12	Z	30	23/ 77	14	0	141.6	190.9	237.7	5
42701	00	Z	30	23/ 85	16	0	235.1	36.2	237.9	8
42867	00	Z	30	21/ 79	12	0	161.6	193.1	251.8	9
42867	12	Z	200	21/ 79	21	0	113.1	25.7	116.0	7
42874	12	Z	100	21/ 82	16	0	116.5	4.8	116.6	4
42971	12	Z	30	20/ 86	11	0	81.4	196.0	212.2	4
43003	12	Z	150	19/ 73	15	0	106.8	104.4	149.3	5
43014	00	Z	50	20/ 75	12	0	59.0	-251.0	257.8	9
43041	00	Z	150	19/ 82	15	0	78.7	-78.1	110.9	7
43128	00	Z	200	17/ 78	21	0	63.9	-87.6	108.4	9
43128	12	Z	30	17/ 78	13	1	120.7	199.8	233.5	4
43150	00	Z	200	18/ 83	23	0	66.0	-69.1	95.6	8
43185	00	Z	200	16/ 81	27	0	84.3	-34.6	91.1	4
43185	12	Z	70	16/ 81	10	1	177.5	132.3	221.4	5
43192	00	Z	200	15/ 74	21	0	85.9	-26.4	89.9	7
43192	12	Z	150	15/ 74	18	1	74.4	73.4	104.5	5
43279	00	Z	250	13/ 80	24	0	54.7	-47.5	72.4	4
43285	00	Z	50	13/ 75	13	0	131.9	-49.8	141.0	5
43285	12	Z	70	13/ 75	11	0	98.1	144.5	174.6	5
43295	12	Z	150	13/ 78	11	0	67.1	115.1	133.2	4
43333	00	Z	70	12/ 93	10	0	138.8	26.4	141.3	4
43346	12	Z	30	11/ 80	12	4	121.3	261.3	288.1	7
43353	00	Z	200	10/ 76	24	0	60.9	-77.8	98.7	6
43371	00	Z	50	8/ 77	20	1	112.2	-196.5	226.3	8
56691	12	Z	150	27/ 104	25	0	32.4	85.8	91.7	4
56739	12	Z	100	25/ 98	26	0	32.1	116.4	120.7	4
56985	12	Z	100	23/ 103	26	0	37.2	137.7	142.7	4
57447	12	Z	70	30/ 109	25	0	40.6	129.9	136.1	5
60360	12	Z	700	37/ 8	2	12	4.5	-89.5	89.6	4
60490	12	Z	300	36/ -1	1	11	0.0	-185.0	185.0	7
61902	12	Z	100	-8/ -14	16	0	45.1	153.9	160.4	6
62414	00	Z	70	24/ 33	23	0	115.3	143.3	183.9	4
62414	12	Z	30	24/ 33	9	5	71.6	257.0	266.8	8
63450	12	Z	700	9/ 39	15	0	10.0	64.7	65.4	6
65578	12	Z	30	5/ -4	19	0	36.3	178.2	181.9	5
89022	12	Z	50	-75/ -27	10	4	143.5	-79.4	164.0	7
91557	12	Z	200	-18/ 168	20	4	23.0	-190.9	192.3	10
96163	00	Z	150	-1/ 100	15	1	112.0	51.1	123.1	9
96237	00	Z	200	-2/ 106	17	0	50.4	-122.4	132.3	8
97560	00	Z	150	-1/ 136	11	0	77.3	-45.7	89.8	4
97560	12	Z	250	-1/ 136	11	0	56.1	-63.4	84.6	5
97724	00	Z	250	-4/ 128	23	0	58.0	-64.8	87.0	5

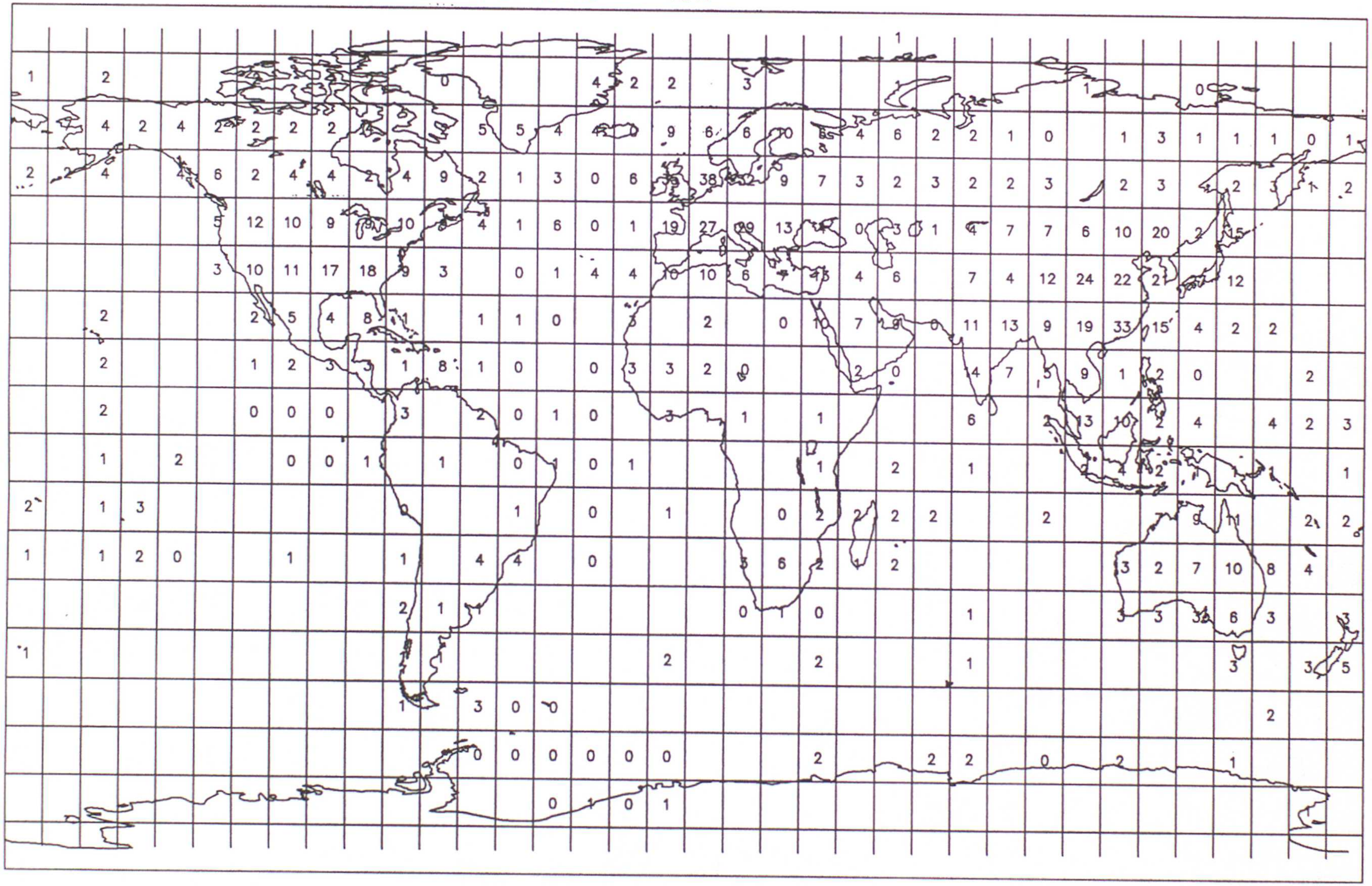
AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – FEBRUARY 1997

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1347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2 2 4 4 6 2 4 4 2 4 9 2 1 3 0 6 39 38 32 9 7 3 2 3 2 2 3 2 3 2 3 2
5 12 10 9 10 4 1 6 0 1 19 27 29 13 0 3 1 4 7 7 6 10 20 2 15
3 10 11 17 18 9 3 0 1 4 4 10 10 6 7 45 4 6 7 4 12 24 22 21 12
2 2 5 4 8 1 1 1 0 3 2 0 10 7 9 0 11 13 9 19 33 15 4 2 2
2 1 2 3 3 1 8 1 0 0 3 3 2 0 2 0 14 7 5 9 1 2 0 2
2 0 0 0 3 2 0 1 0 3 1 1 6 2 13 10 2 4 4 2 3
1 2 0 0 1 1 0 1 0 1 1 2 1 2 4 2 1
2 1 3 0 1 0 1 0 2 2 2 2 2 9 11 2 2
1 1 2 0 1 1 4 4 0 3 6 2 1 2 3 2 7 10 8 4
2 1 1 0 1 0 1 3 3 32 6 3 3
1 2 2 1 3 3 5
1 3 0 0 2
0 0 0 0 0 0 2 2 2 0 2 1
0 1 0 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	: ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
FNOU	12	V	250	40/ -31	9	0	11	5.0	-6.5	18.9	1
40265	00	V	300	32/ 36	22	0	13	-6.9	2.5	15.2	1
40800	12	V	300	32/ 52	12	0	8	-12.1	1.1	17.8	1
42182	12	V	250	29/ 77	20	0	5	-7.7	5.8	15.5	1
42339	00	V	250	26/ 73	17	0	5	-22.4	-3.2	21.7	4
42339	12	V	250	26/ 73	16	0	25	-23.6	1.7	26.2	5
42369	00	V	150	27/ 81	10	0	40	8.2	-20.7	28.1	3
42369	12	V	250	27/ 81	17	0	11	-4.2	-20.8	20.7	5
42397	00	V	250	27/ 88	16	0	12	-13.1	-0.4	19.1	3
42397	12	V	300	27/ 88	16	0	0	-16.7	-6.9	17.3	1
42410	00	V	300	26/ 92	13	0	0	11.8	-1.3	15.6	1
54374	12	V	200	42/ 127	14	0	21	-1.0	-1.6	15.2	1
56691	00	V	150	27/ 104	22	0	4	13.6	6.3	19.7	2
56691	12	V	100	27/ 104	14	1	53	15.4	5.9	22.3	2
58424	12	V	150	31/ 117	27	0	14	12.2	0.6	19.1	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – FEBRUARY 1997 FIGURE 9
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1189

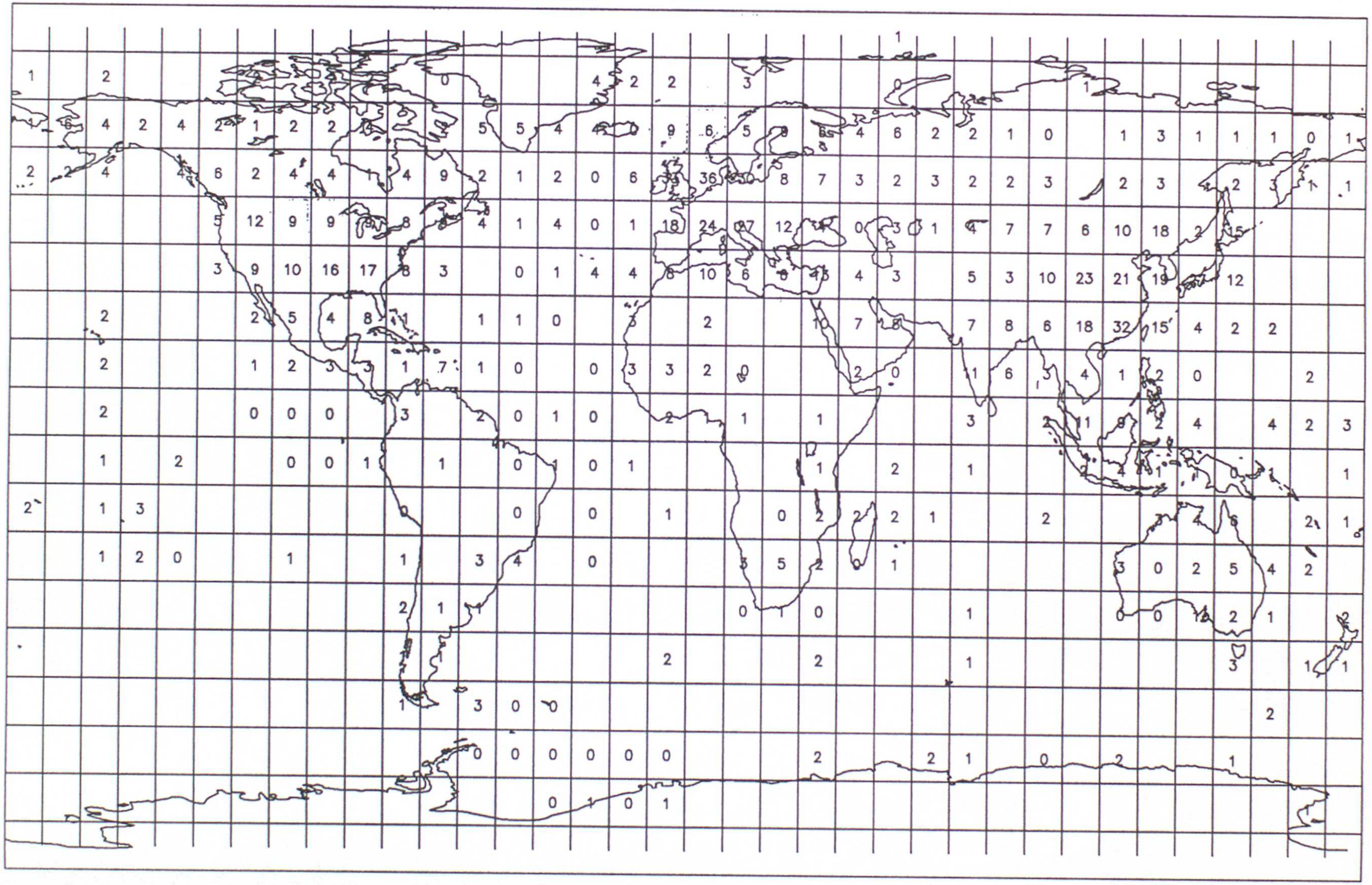


TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA

:NUM OBS ≥ 5, and
ABSOLUTE BIAS $\geq 10°$, with
SD $< 30°$, and
MAX SPREAD $< 10°$

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
16144	00	DD	45/ 12	19	20.2	8.1	25.7
40265	00	DD	32/ 36	19	-10.2	5.3	14.7
40706	00	DD	38/ 46	13	-17.3	7.3	23.8
41024	00	DD	22/ 39	28	-10.2	3.9	11.8
42339	00	DD	26/ 73	19	14.2	6.3	9.6
42339	12	DD	26/ 73	16	13.1	5.3	9.5
42369	12	DD	27/ 81	17	21.9	4.1	10.0
42397	12	DD	27/ 88	13	12.4	3.3	13.4
43369	12	DD	8/ 73	13	10.6	9.1	19.6
48568	00	DD	7/ 101	18	19.6	7.4	23.0
54337	00	DD	41/ 121	25	-55.3	9.1	17.2
54337	12	DD	41/ 121	20	-55.2	3.1	15.8
61901	12	DD	-16/ -6	13	-21.3	6.5	26.2
62337	12	DD	31/ 34	23	10.2	4.4	10.3
62414	00	DD	24/ 33	26	-13.0	2.2	13.5
62414	12	DD	24/ 33	23	-15.0	2.3	11.7
72476	00	DD	39/-109	22	-17.0	2.8	11.1
72476	12	DD	39/-109	20	-16.9	5.1	11.5
76612	12	DD	21/-103	16	10.4	5.5	17.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: February, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

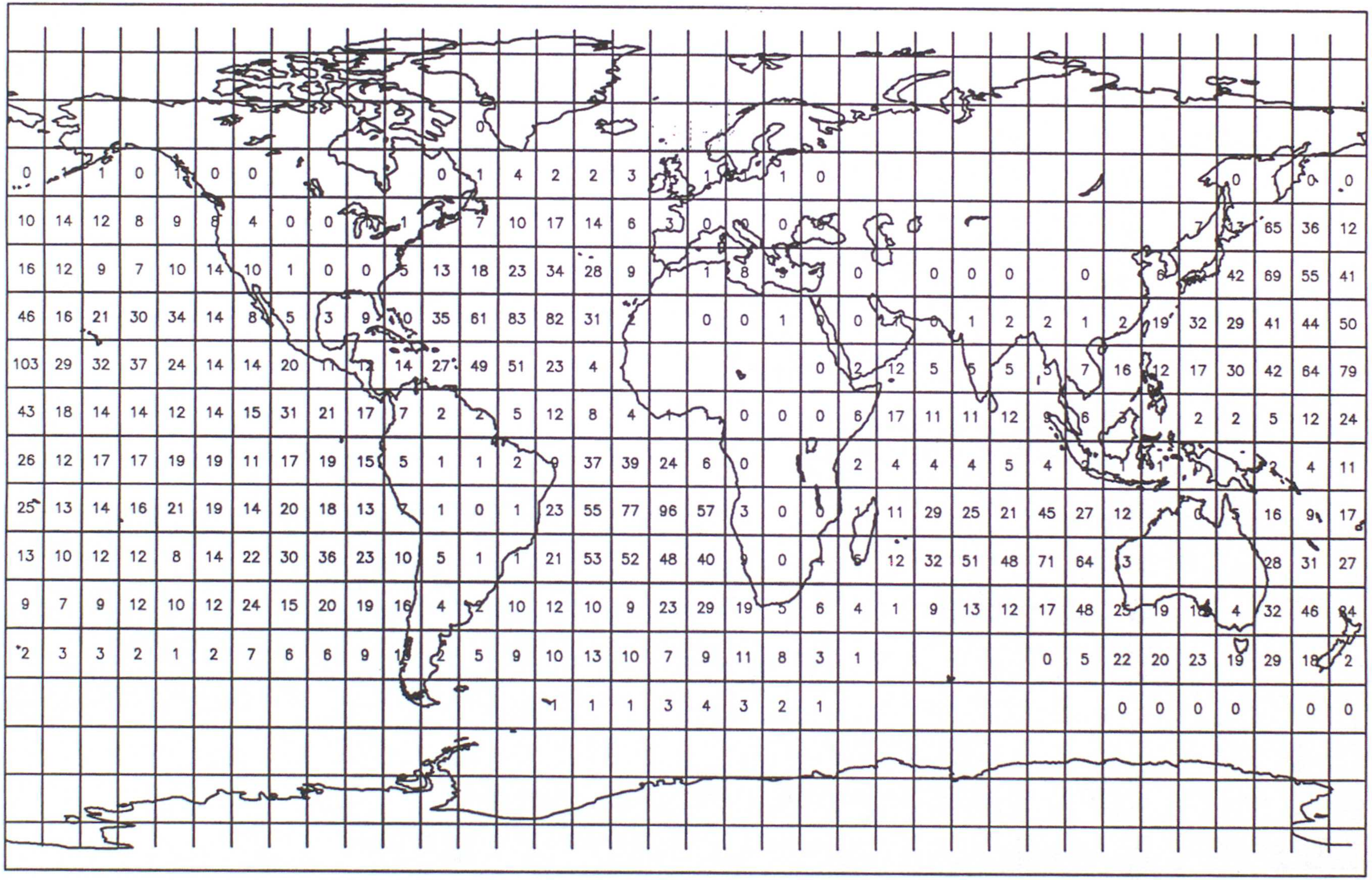
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

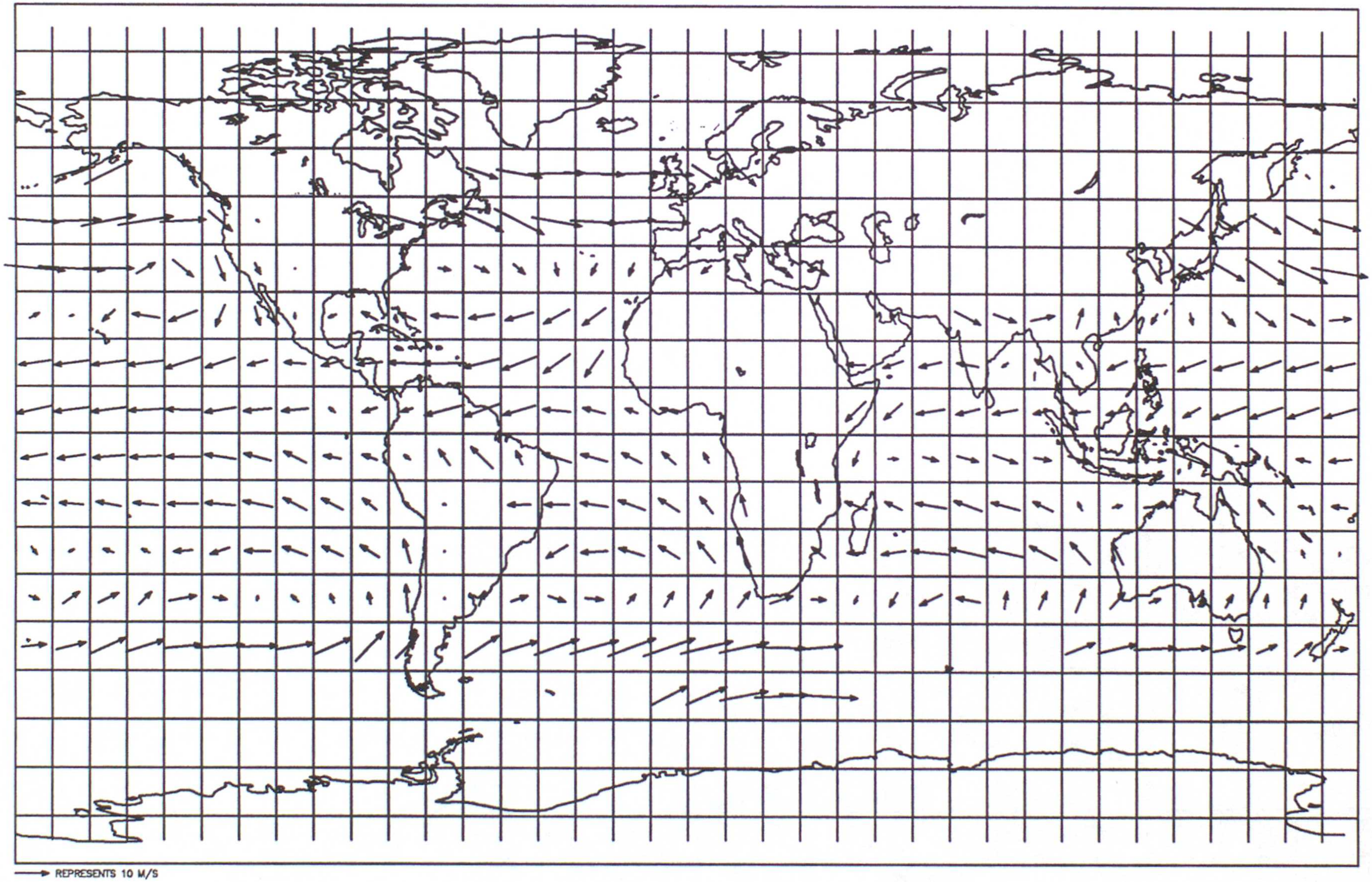
:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
FEBRUARY 1997


0
0 1 1 0 1 0 0 0 1 4 2 2 3 1 1 0 0 0 0
10 14 12 8 9 8 4 0 0 1 7 10 17 14 6 3 0 0 0 0 7 13 65 36 12
16 12 9 7 10 14 10 1 0 0 5 13 18 23 34 28 9 1 1 8 5 3 0 0 0 0 0 6 42 69 55 41
46 16 21 30 34 14 8 5 3 9 10 35 61 83 82 31 2 0 0 1 0 0 1 0 1 2 2 1 2 19 32 29 41 44 50
103 29 32 37 24 14 14 20 11 12 14 27 49 51 23 4 0 2 12 5 5 5 3 7 16 12 17 30 42 64 79
43 18 14 14 12 14 15 31 21 17 7 2 2 5 12 8 4 1 1 0 0 0 6 17 11 11 12 9 6 3 1 2 2 5 12 24
26 12 17 17 19 19 11 17 19 15 5 1 1 2 9 37 39 24 6 0 2 4 4 4 5 4 2 1 1 0 2 4 11
25 13 14 16 21 19 14 20 18 13 7 1 0 1 23 55 77 96 57 3 0 0 1 11 29 25 21 45 27 12 1 0 5 16 9 17
13 10 12 12 8 14 22 30 36 23 10 5 1 1 21 53 52 48 40 9 0 4 6 12 32 51 48 71 64 3 28 31 27
9 7 9 12 10 12 24 15 20 19 16 4 2 10 12 10 9 23 29 19 5 6 4 1 9 13 12 17 48 25 19 16 4 32 46 34
2 3 3 2 1 2 7 6 6 9 13 2 5 9 10 13 10 7 9 11 8 3 1 0 5 22 20 23 19 29 18 2
1 1 1 3 4 3 2 1 0 0 0 0 0 0

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
FEBRUARY 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11


REPRESENTS 10 M/S

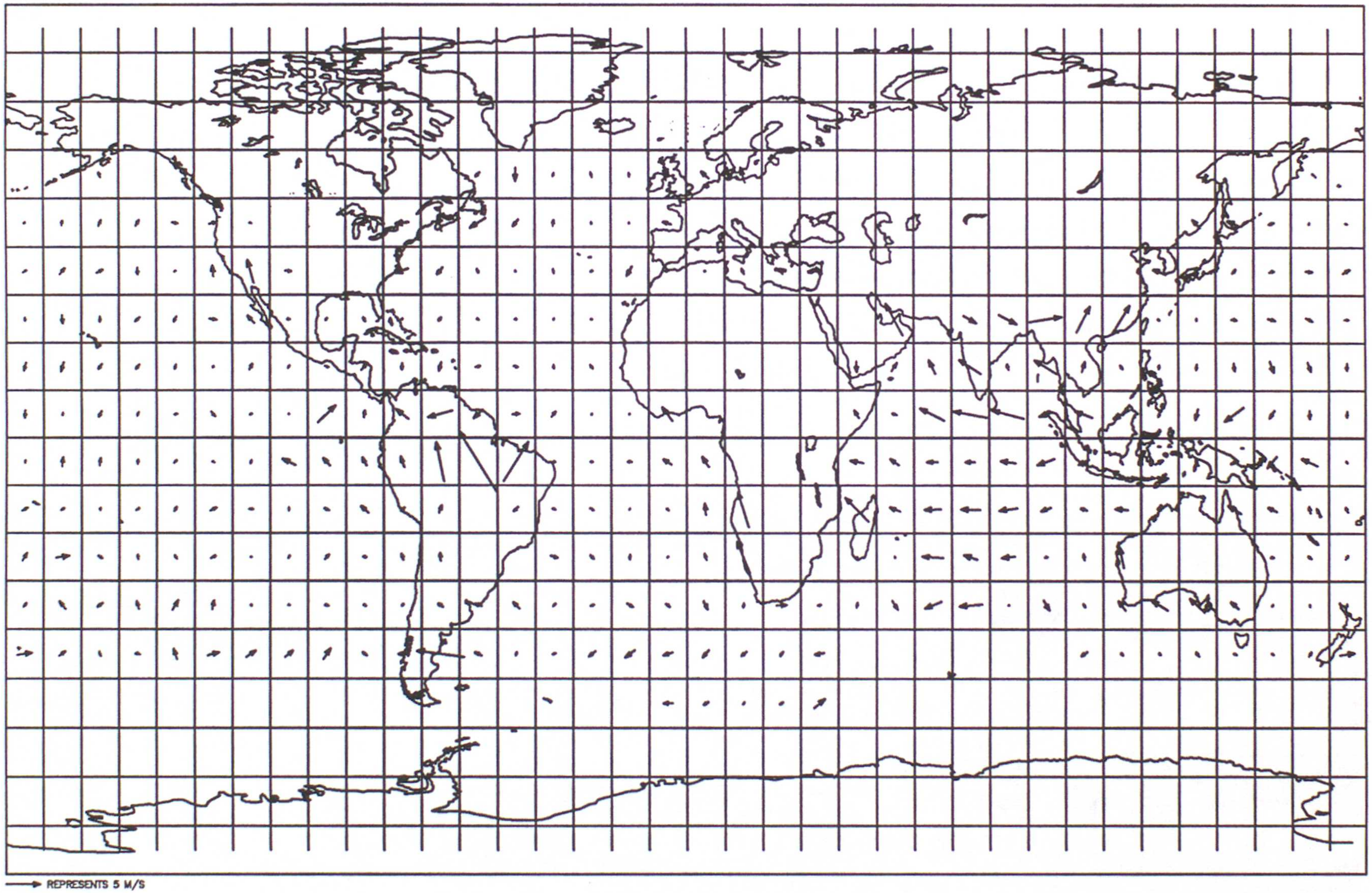
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA

FIGURE 12

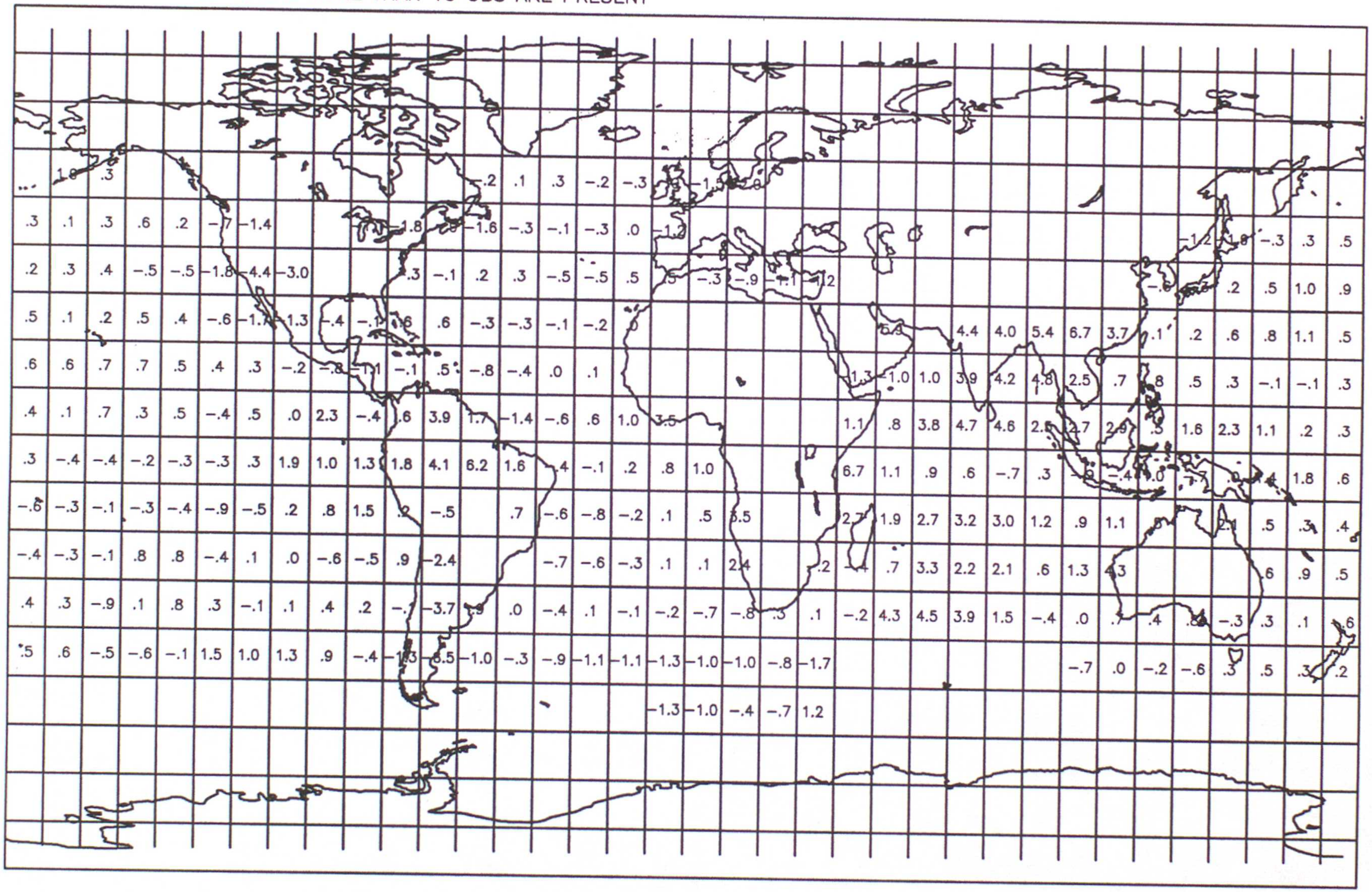
FEBRUARY 1997

ALL OBSERVATIONS

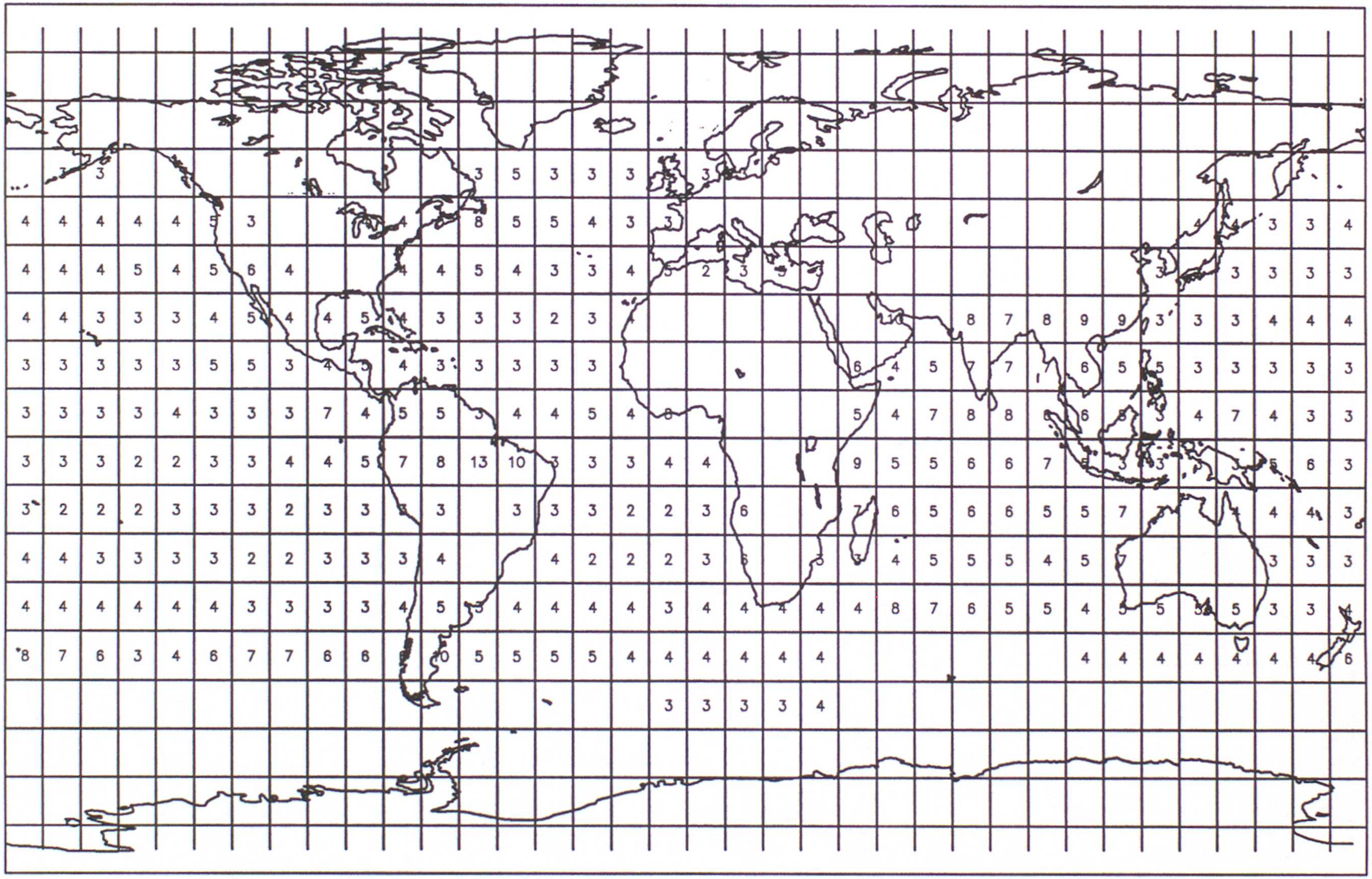
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



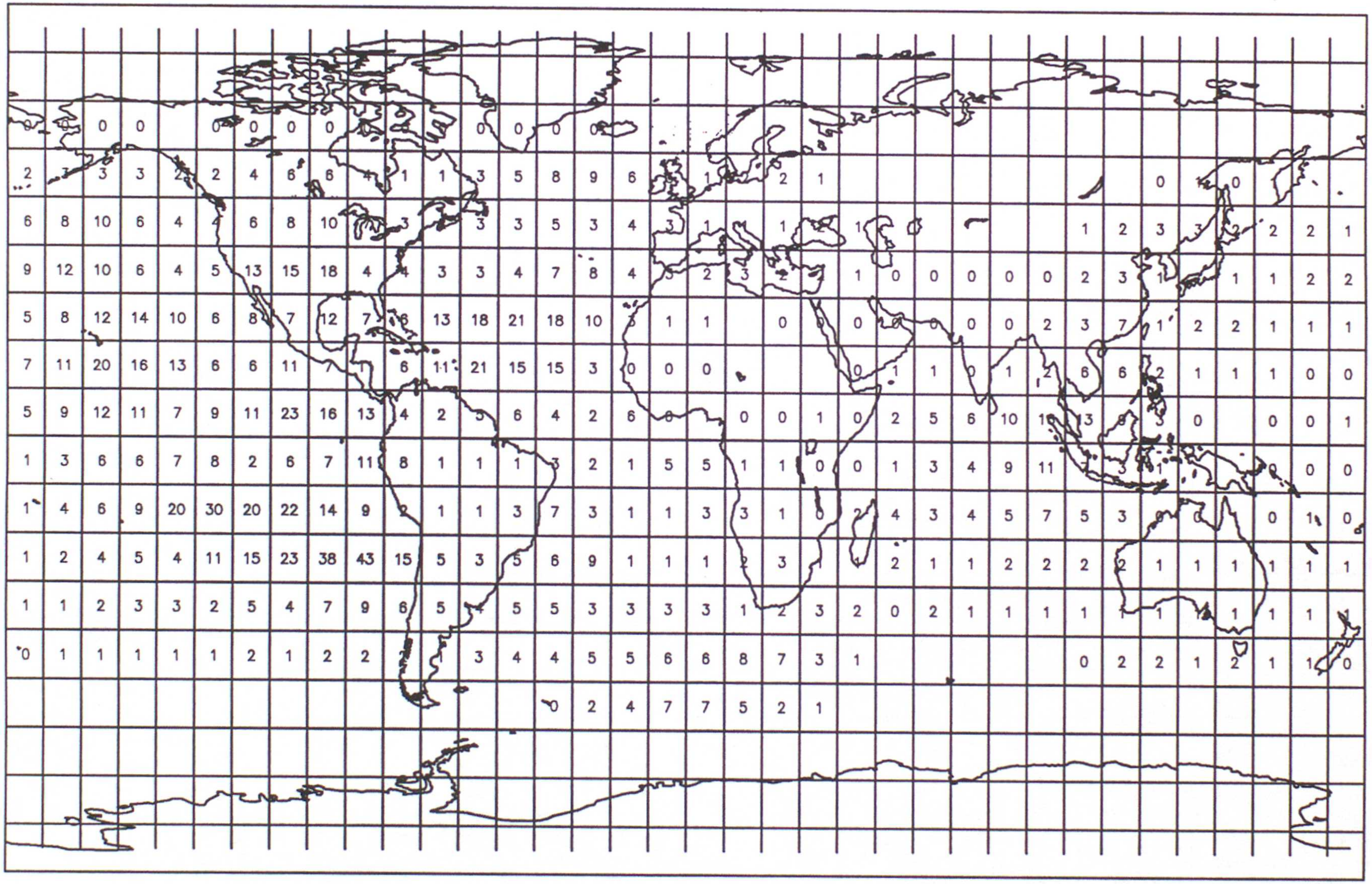
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN: 701 AND 1000 HPA FIGURE 13
FEBRUARY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.8 .3 .2 .1 .3 –.2 –.3 –1.5
.3 .1 .3 .6 .2 –.7 –1.4 –1.8 –1.6 –.3 –.1 –.3 .0 –1.2 –1.2 1.8 –.3 .3 .5
.2 .3 .4 –.5 –.5 –1.8 –4.4 –3.0 .3 –.1 .2 .3 –.5 –.5 .5 .5 –.3 –.9 –1.1 –1.2 –.6 .2 .5 1.0 .9
.5 .1 .2 .5 .4 –.6 –1.7 1.3 –.4 –.1 .6 .6 –.3 –.3 –.1 –.2 6.4 4.4 4.0 5.4 6.7 3.7 .1 .2 .6 .8 1.1 .5
.6 .6 .7 .7 .5 .4 .3 –.2 –.8 –1.1 –.1 .5 –.8 –.4 .0 .1 1.3 –1.0 1.0 3.9 4.2 4.8 2.5 .7 .8 .5 .3 –.1 –.1 .3
.4 .1 .7 .3 .5 –.4 .5 .0 2.3 –.4 .6 3.9 1.7 –1.4 –.6 .6 1.0 3.5 1.1 .8 3.8 4.7 4.6 2.5 2.7 2.9 .3 1.6 2.3 1.1 .2 .3
.3 –.4 –.4 –.2 –.3 –.3 .3 1.9 1.0 1.3 1.8 4.1 6.2 1.6 .4 –.1 .2 .8 1.0 6.7 1.1 .9 .6 –.7 .3 –.4 1.0 1.8 .6
–.6 –.3 –.1 –.3 –.4 –.9 –.5 .2 .8 1.5 .2 –.5 .7 –.6 –.8 –.2 .1 .5 3.5 2.7 1.9 2.7 3.2 3.0 1.2 .9 1.1 2.1 .5 .3 .4
–.4 –.3 –.1 .8 .8 –.4 .1 .0 –.6 –.5 .9 –2.4 –.7 –.6 –.3 .1 .1 2.4 .2 –.4 .7 3.3 2.2 2.1 .6 1.3 4.3 .6 .9 .5
.4 .3 –.9 .1 .8 .3 –.1 .1 .4 .2 –.1 –3.7 .9 .0 –.4 .1 –.1 –.2 –.7 –.8 .3 .1 –.2 4.3 4.5 3.9 1.5 –.4 .0 .7 .4 .6 –.3 .3 .1 .6
.5 .6 –.5 –.6 –.1 1.5 1.0 1.3 .9 –.4 –1.3 –6.5 –1.0 –.3 –.9 –1.1 –1.1 –1.3 –1.0 –1.0 –.8 –1.7 –.7 .0 –.2 –.6 .3 .5 .3 .2
–1.3 –1.0 –.4 –.7 1.2

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
FEBRUARY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



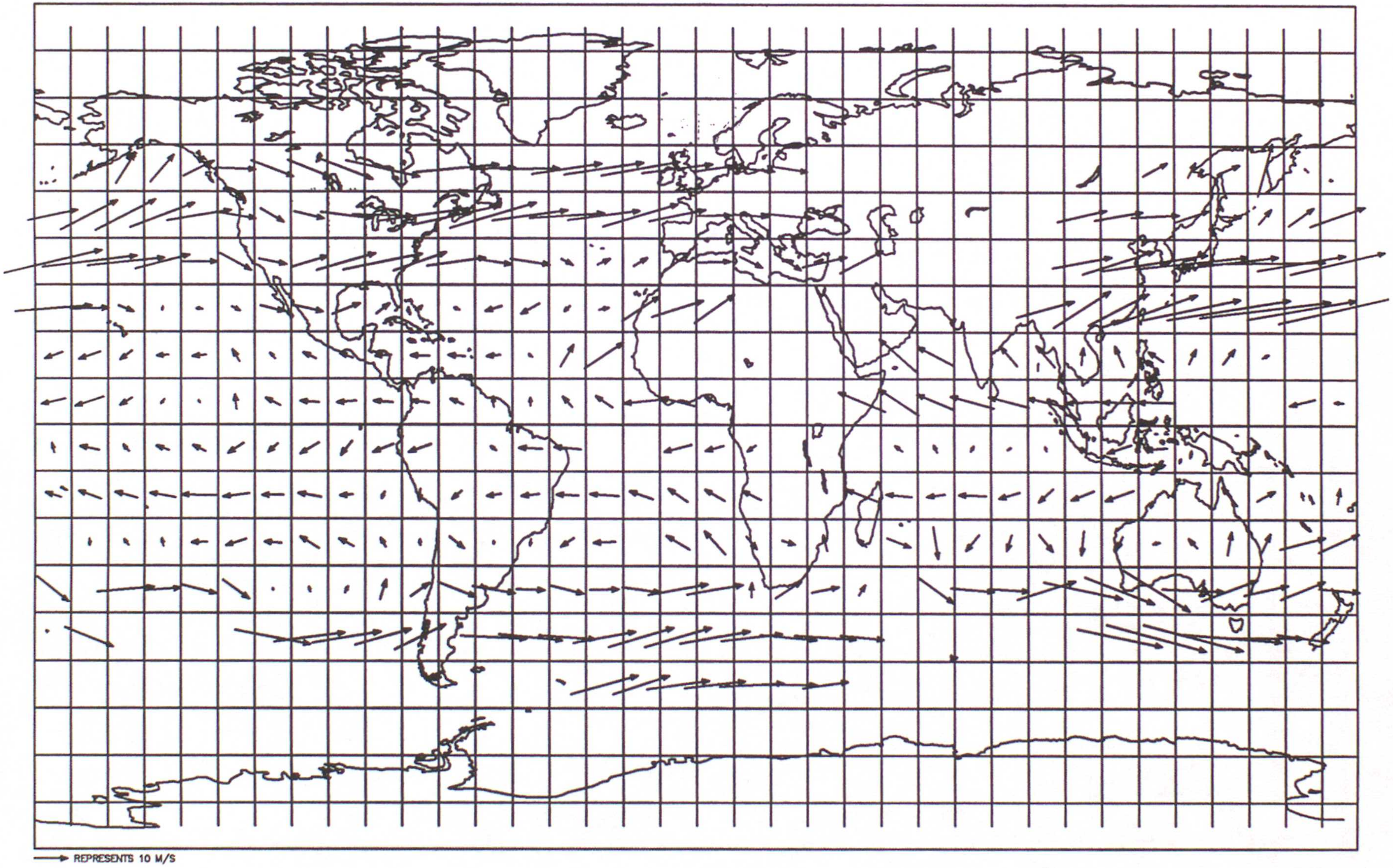
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
FEBRUARY 1997


0 0 0 0 0 0 0 0 0 0 0 0 0 0
2 3 3 3 2 2 4 6 6 4 1 1 3 5 8 9 6 1 1 2 1 0 1 0
6 8 10 6 4 4 6 8 10 3 3 3 3 5 3 4 3 1 1 2 1 1 2 3 3 2 2 2 1
9 12 10 6 4 5 13 15 18 4 4 3 3 4 7 8 4 3 2 3 2 2 1 0 0 0 0 0 2 3 1 1 1 2 2
5 8 12 14 10 6 8 7 12 7 6 13 18 21 18 10 3 1 1 0 0 0 0 0 0 2 3 7 1 2 2 1 1 1
7 11 20 16 13 6 6 11 7 1 6 11 21 15 15 3 0 0 0 0 1 1 0 1 2 6 6 2 1 1 1 0 0
5 9 12 11 7 9 11 23 16 13 4 2 3 6 4 2 6 6 0 0 1 0 2 5 6 10 10 13 3 3 0 0 0 1
1 3 6 6 7 8 2 6 7 11 8 1 1 1 3 2 1 5 5 1 1 0 0 1 3 4 9 11 7 3 1 0 0 0
1 4 6 9 20 30 20 22 14 9 2 1 1 3 7 3 1 1 3 3 1 0 2 4 3 4 5 7 5 3 0 0 0 1 0
1 2 4 5 4 11 15 23 38 43 15 5 3 5 6 9 1 1 1 2 3 1 1 2 1 1 2 2 2 2 1 1 1 1 1 1
1 1 2 3 3 2 5 4 7 9 6 5 4 5 5 3 3 3 3 1 2 3 2 0 2 1 1 1 1 1 1 1 1 1 1
0 1 1 1 1 1 2 1 2 2 1 3 4 4 5 5 6 6 8 7 3 1 0 2 2 1 2 1 1 0
0 2 4 7 7 5 2 1

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA

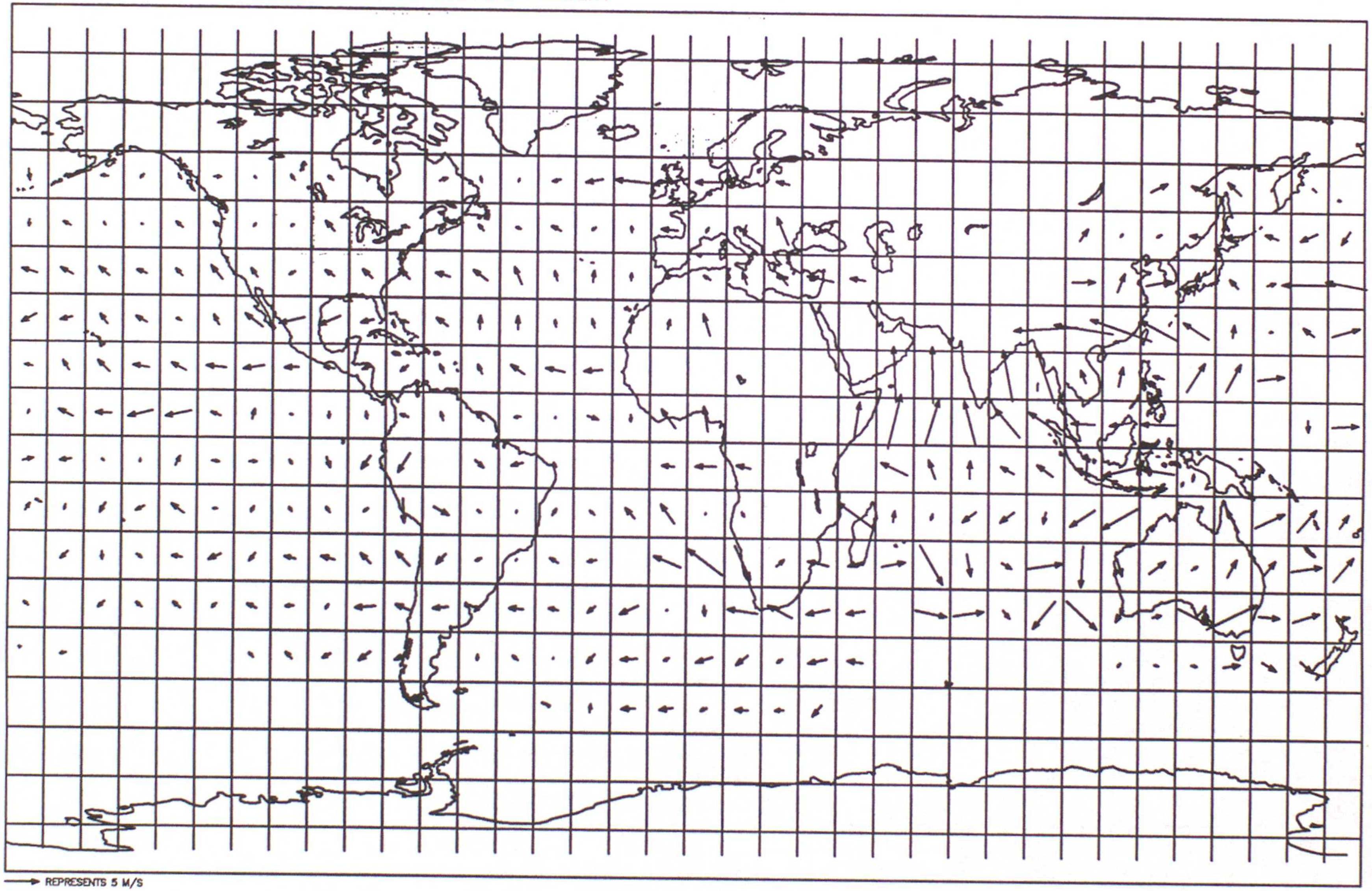
FIGURE 16

FEBRUARY 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

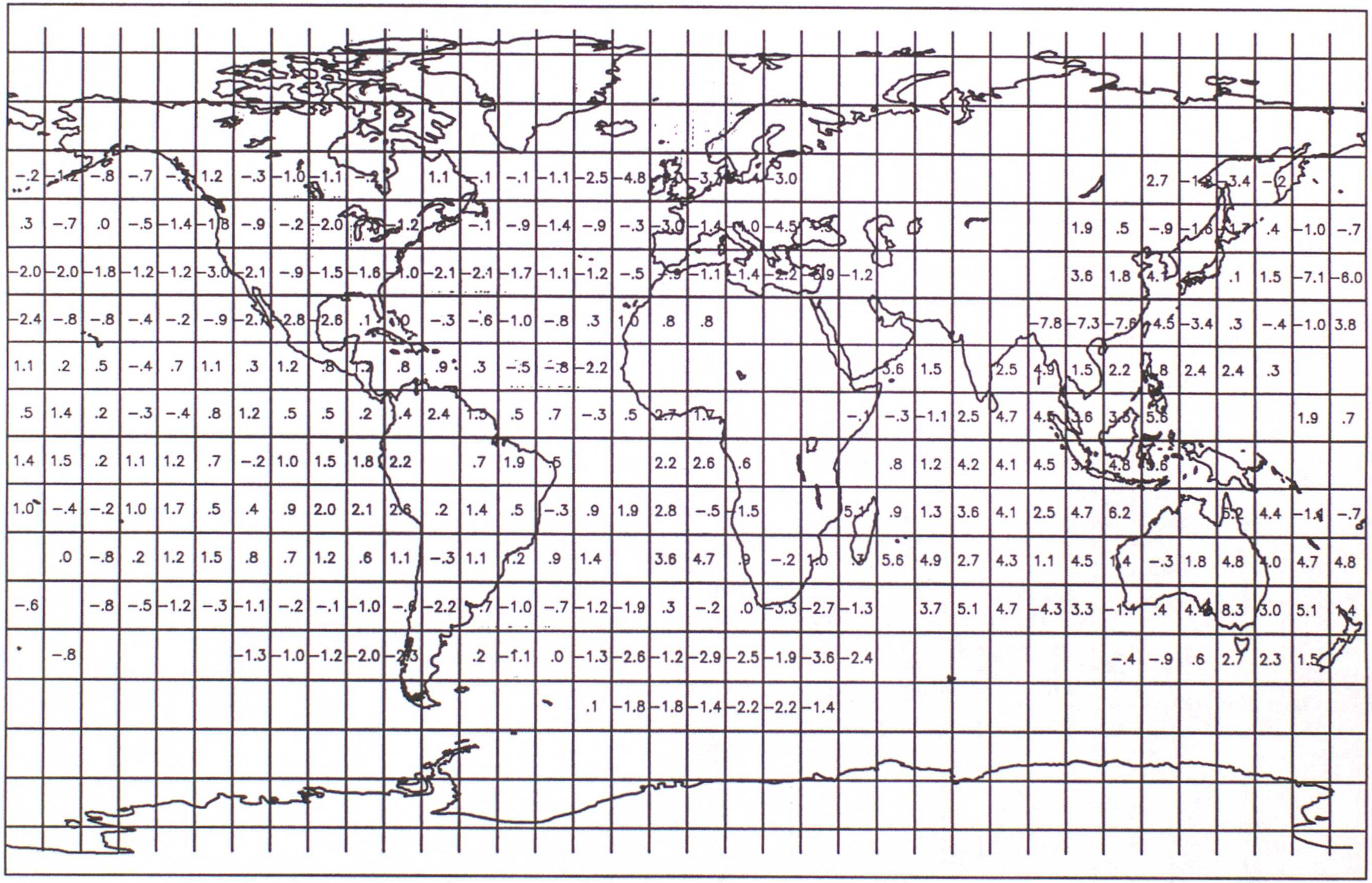

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
FEBRUARY 1997
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

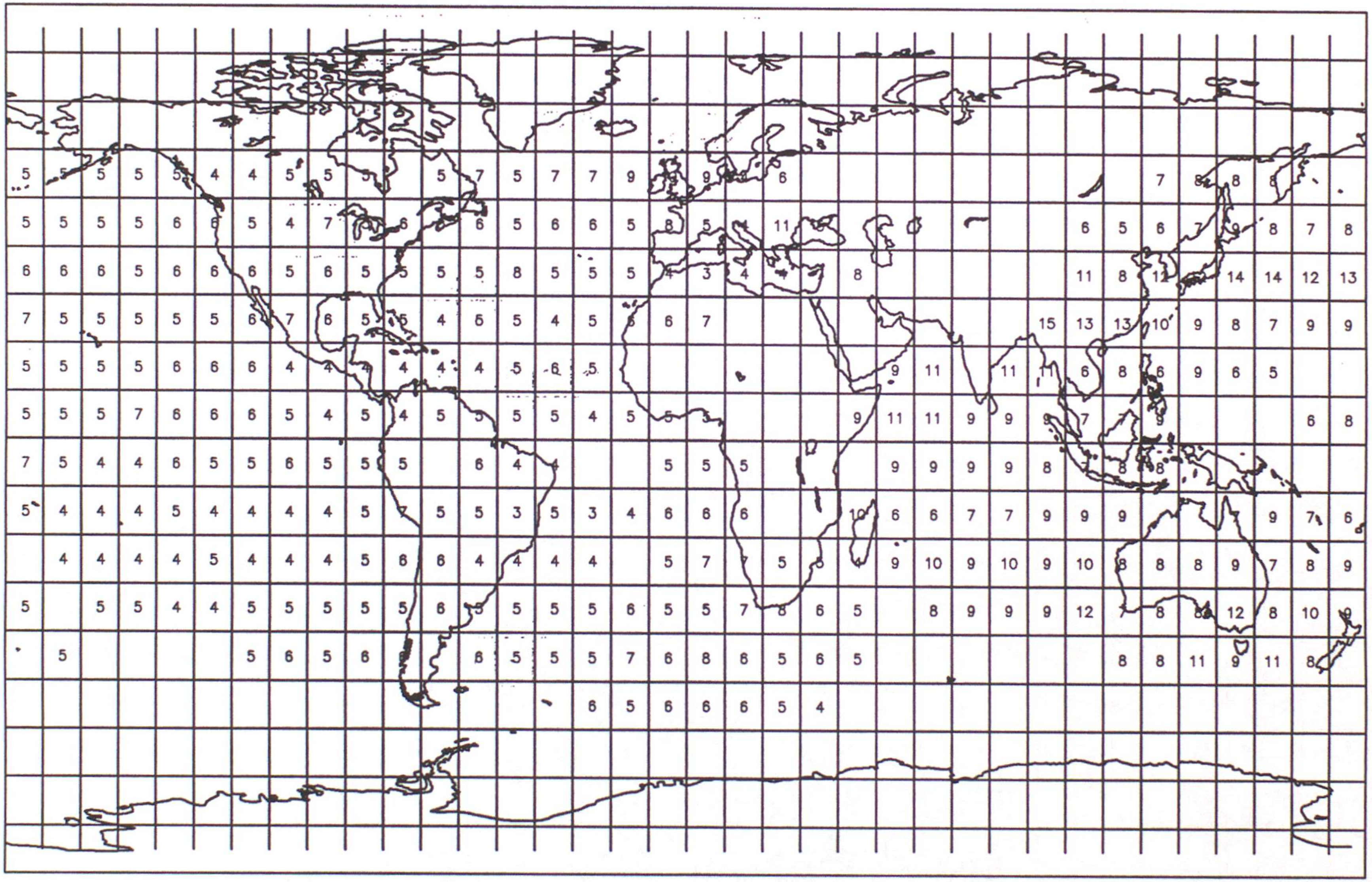
FIGURE 17



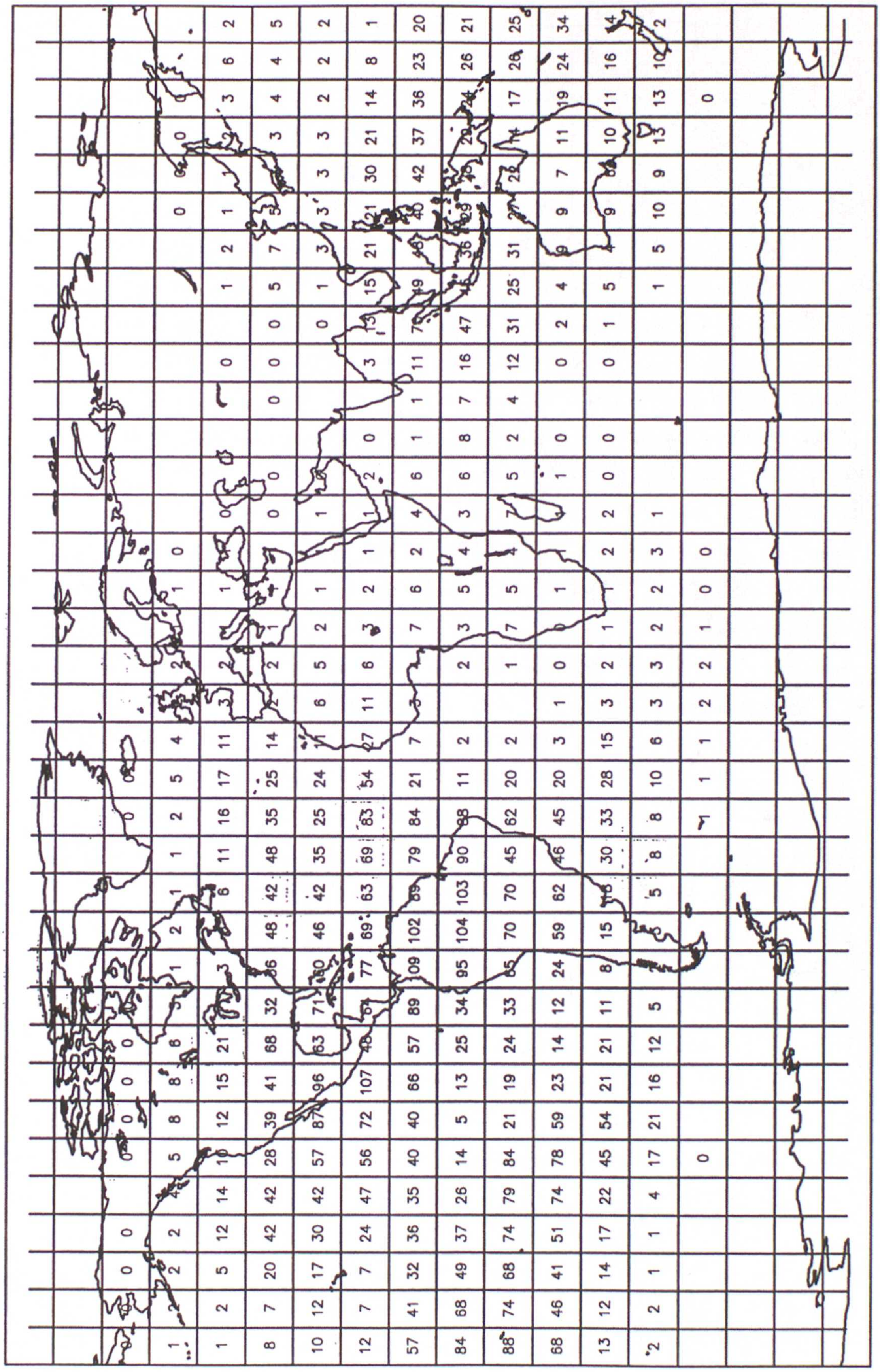
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
FEBRUARY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.2 -1.2 -.8 -.7 1.2 -.3 -1.0 -1.1 1.1 .1 -.1 -1.1 -2.5 -4.8 -3.0 2.7 -3.4
.3 -.7 .0 -.5 -1.4 -.9 -.2 -2.0 -1.2 -.1 -.9 -1.4 -.9 -.3 -3.0 -1.4 -4.5 1.9 .5 -.9 -1.6 .4 -1.0 -.7
-2.0 -2.0 -1.8 -1.2 -1.2 -3.0 -2.1 -.9 -1.5 -1.6 -1.0 -2.1 -2.1 -1.7 -1.1 -1.2 -.5 -1.1 -1.4 -1.2 3.6 1.8 .1 1.5 -7.1 -6.0
-2.4 -.8 -.8 -.4 -.2 -.9 -2.8 -2.6 .1 -.3 -.6 -1.0 -.8 .3 .8 .8 -7.8 -7.3 4.5 -3.4 .3 -.4 -1.0 3.8
1.1 .2 .5 -.4 .7 1.1 .3 1.2 .8 .9 .3 -.5 -.8 -2.2 3.6 1.5 2.5 4.9 1.5 2.2 .8 2.4 2.4 .3
.5 1.4 .2 -.3 -.4 .8 1.2 .5 .5 .2 .4 2.4 .5 .7 -.3 .5 2.7 -.3 -1.1 2.5 4.7 5.6 1.9 .7
1.4 1.5 .2 1.1 1.2 .7 -.2 1.0 1.5 1.8 2.2 .7 1.9 2.2 2.6 .6 .8 1.2 4.2 4.1 4.5 4.8
1.0 -.4 -.2 1.0 1.7 .5 .4 .9 2.0 2.1 .2 1.4 .5 -.3 .9 1.9 2.8 -.5 1.5 .9 1.3 3.6 4.1 2.5 4.7 6.2 4.4 -.7
.0 -.8 .2 1.2 1.5 .8 .7 1.2 .6 1.1 -.3 1.1 .9 1.4 3.6 4.7 -.2 5.6 4.9 2.7 4.3 1.1 4.5 -.3 1.8 4.8 4.7 4.8
-.6 -.8 -.5 -1.2 -.3 -1.1 -.2 -.1 -1.0 -2.2 -1.0 -.7 -1.2 -1.9 .3 -.2 .0 -2.7 -1.3 3.7 5.1 4.7 -4.3 3.3 .4 8.3 3.0 5.1
-.8 -1.3 -1.0 -1.2 -2.0 .2 -1.1 .0 -1.3 -2.6 -1.2 -2.9 -2.5 -1.9 -3.6 -2.4 -.4 -.9 .6 2.7 2.3
.1 -1.8 -1.8 -1.4 -2.2 -2.2 -1.4

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
FEBRUARY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


5 5 5 5 5 4 4 5 5 5 5 7 5 7 7 9 9 9 6 7 8 8 8
5 5 5 5 6 6 5 4 7 6 6 5 6 6 5 8 5 4 11 6 5 6 7 9 8 7 8
6 6 6 5 6 6 6 5 6 5 5 5 5 8 5 5 5 4 3 4 8 11 8 12 14 14 12 13
7 5 5 5 5 5 6 7 6 5 5 4 6 5 4 5 6 6 7 15 13 13 10 9 8 7 9 9
5 5 5 5 6 6 6 4 4 4 4 4 4 5 6 5 9 11 11 11 6 8 6 9 6 5
5 5 5 7 6 6 6 5 4 5 4 5 5 5 5 4 5 5 3 9 11 11 9 9 9 7 9 6 8
7 5 4 4 6 5 5 6 5 5 5 6 4 4 5 5 5 9 9 9 9 8 7 8 8
5 4 4 4 5 4 4 4 4 5 7 5 5 3 5 3 4 6 6 6 10 6 6 7 7 9 9 9 9 7 6
4 4 4 4 5 4 4 4 5 6 6 4 4 4 4 5 7 7 5 6 4 9 10 9 10 9 10 8 8 8 9 7 8 9
5 5 5 4 4 5 5 5 5 5 6 5 5 5 5 6 5 5 7 8 6 5 8 9 9 9 12 7 8 8 12 8 10 9
5 5 6 5 6 6 6 5 5 5 7 6 8 6 5 6 5 8 8 11 9 11 8
6 5 6 6 6 5 4

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
FEBRUARY 1997



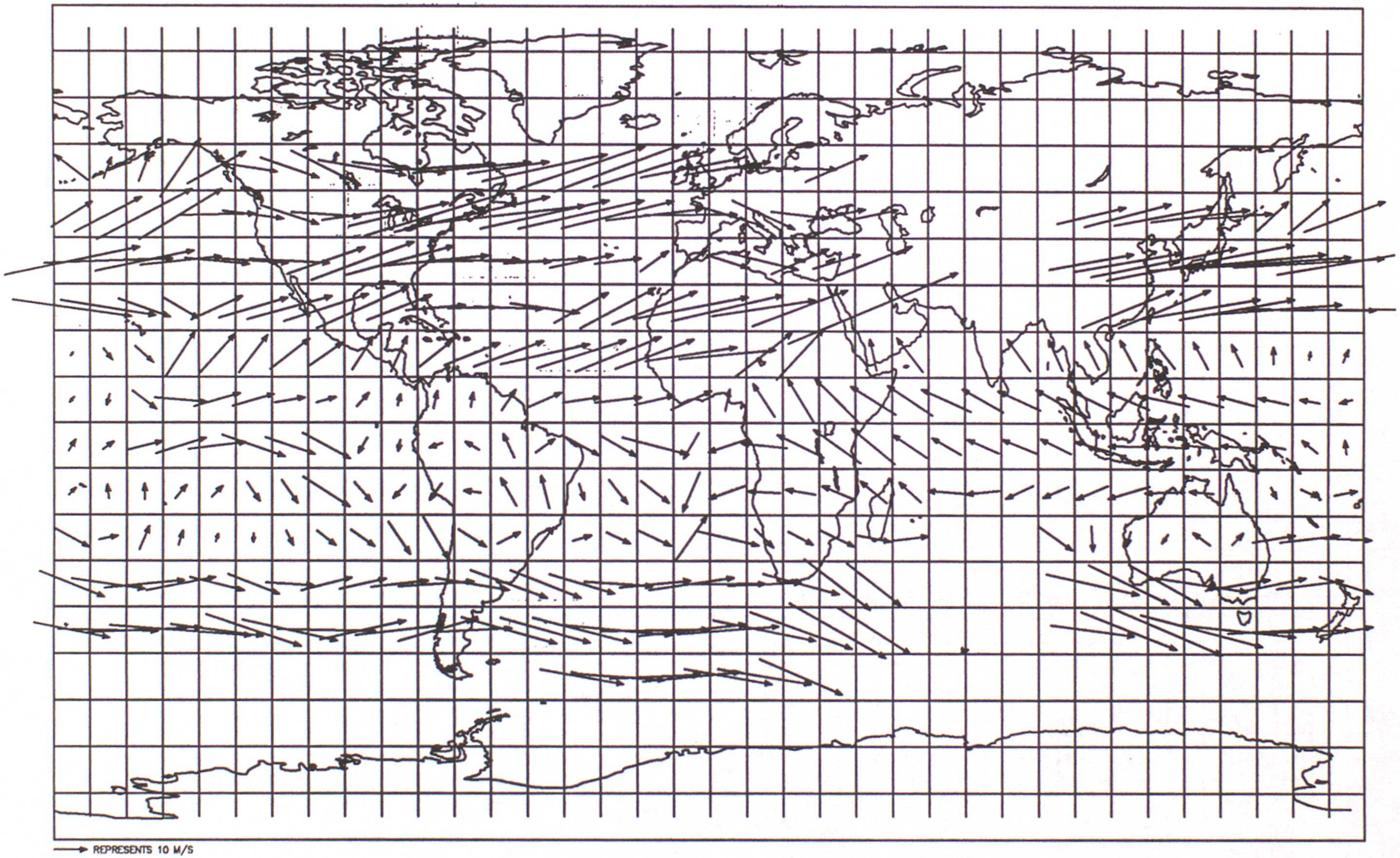
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA

FIGURE 21

FEBRUARY 1997

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

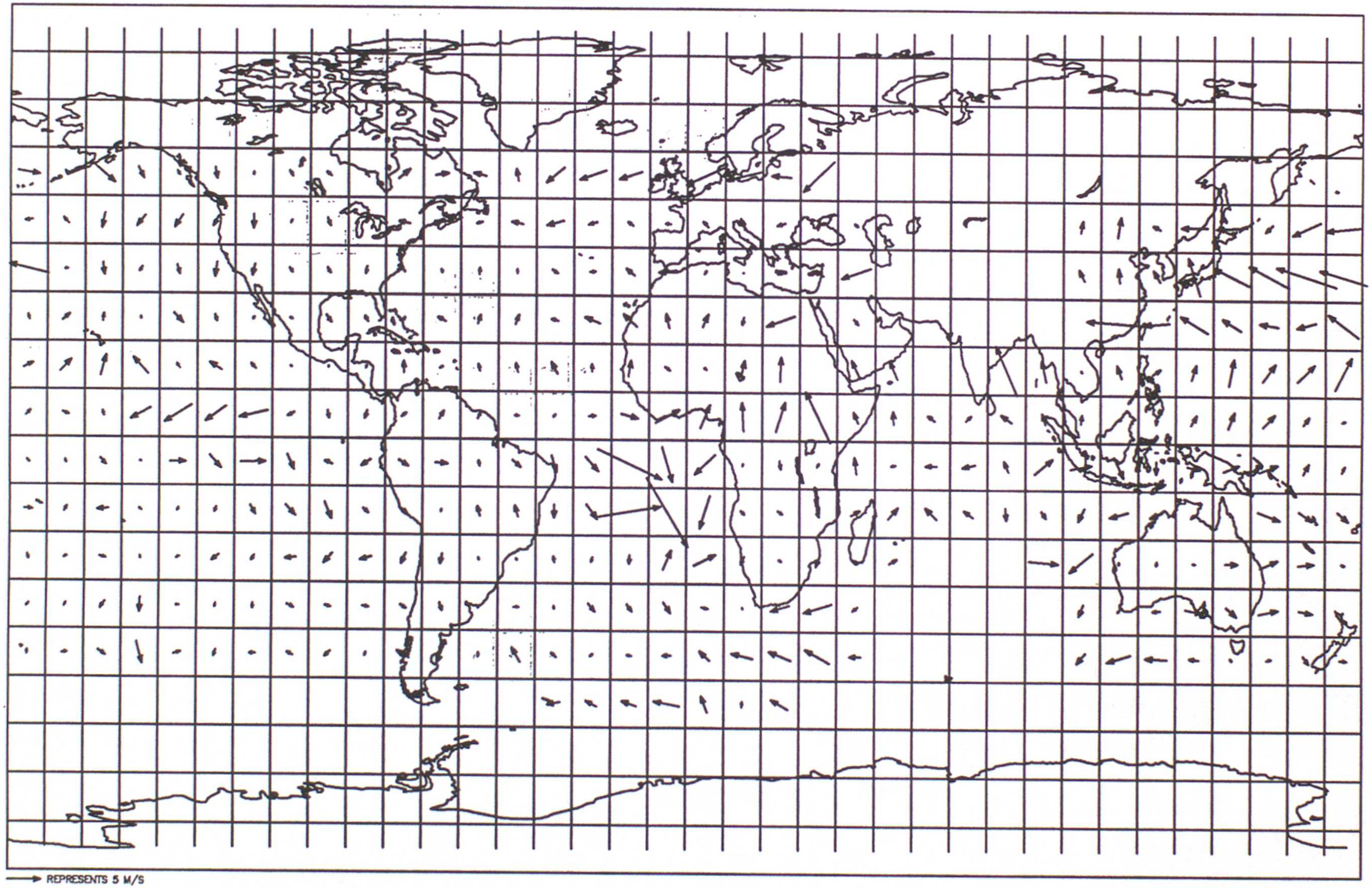
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

FEBRUARY 1997

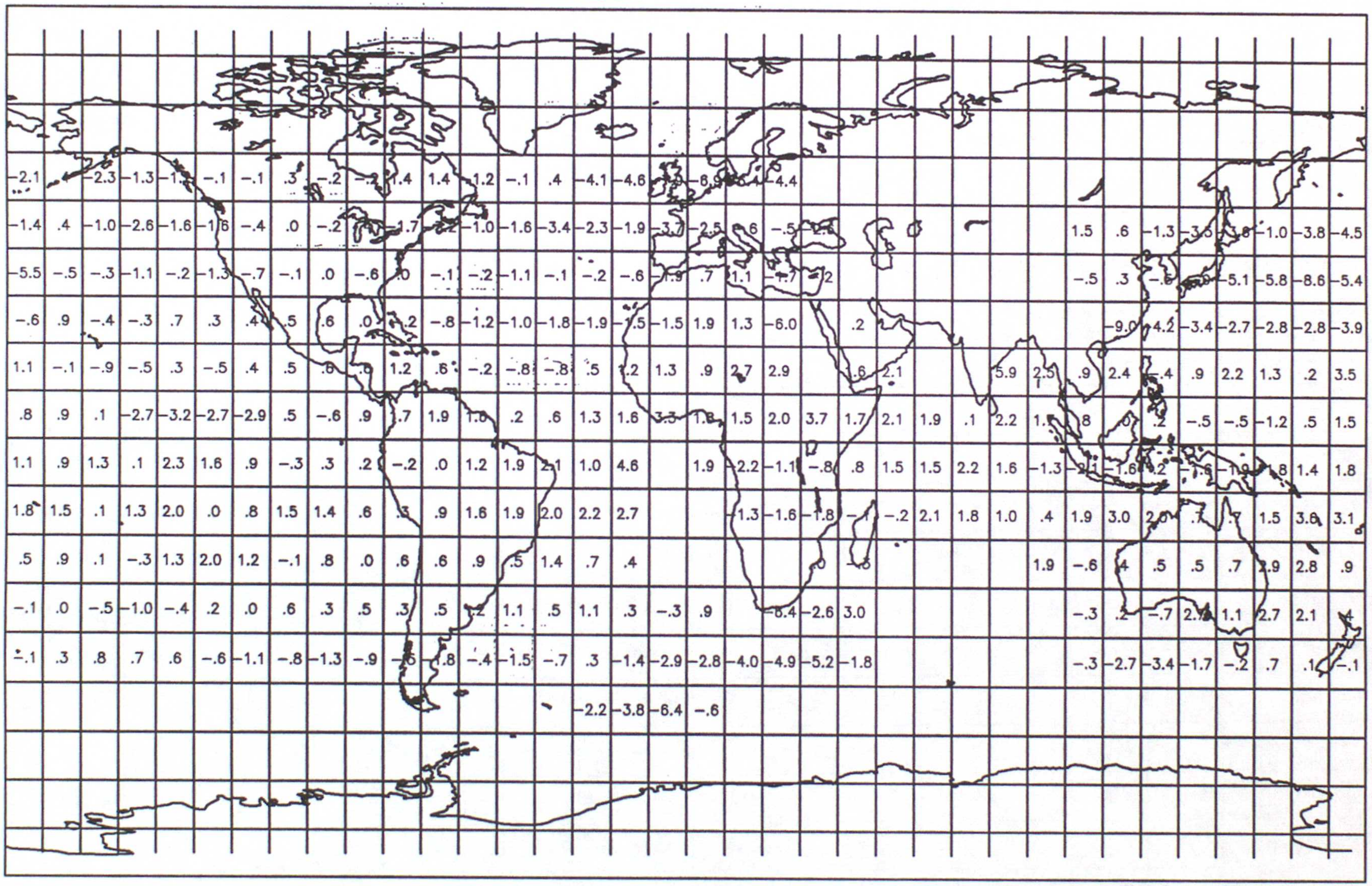
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

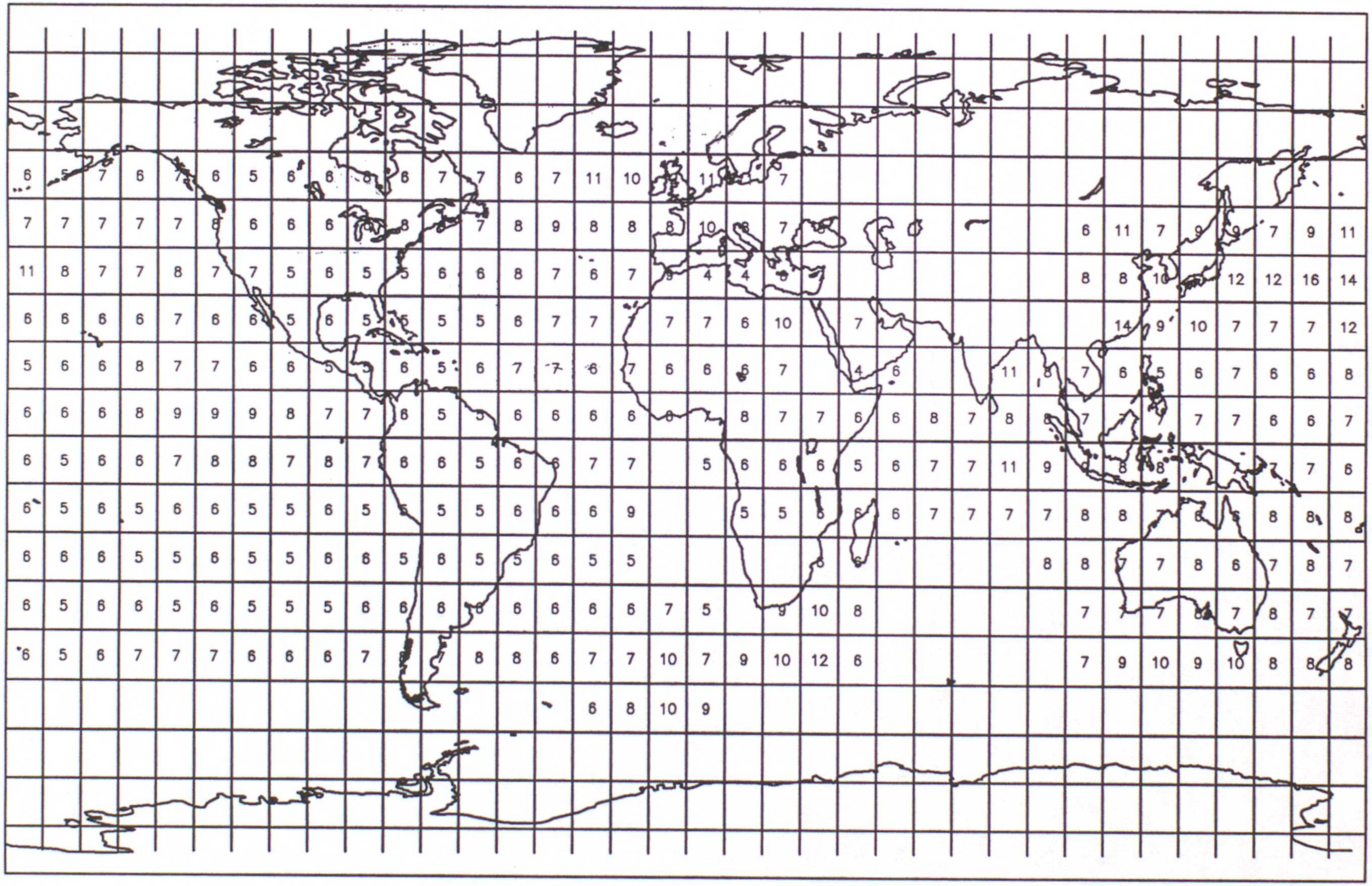
FIGURE 22



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
FEBRUARY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-2.1 -2.3 -1.3 -.1 -.1 .3 -.2 -.2 1.4 1.4 1.2 -.1 .4 -4.1 -4.6 -6.9 -4.4
-1.4 .4 -1.0 -2.6 -1.6 -1.6 -.4 .0 -.2 -1.7 -2.2 -1.0 -1.6 -3.4 -2.3 -1.9 -3.7 -2.5 .6 -.5 1.5 .6 -1.3 -3.5 -1.0 -3.8 -4.5
-5.5 -.5 -.3 -1.1 -.2 -1.3 -.7 -.1 .0 -.6 .0 -.1 -.2 -1.1 -.1 -.2 -.6 -1.9 .7 1.1 -1.7 .2 -.5 .3 -.6 -5.1 -5.8 -8.6 -5.4
-.6 .9 -.4 -.3 .7 .3 .4 .5 .6 .0 .2 -.8 -1.2 -1.0 -1.8 -1.9 -1.5 -1.5 1.9 1.3 -6.0 .2 -9.0 -4.2 -3.4 -2.7 -2.8 -2.8 -3.9
1.1 -.1 -.9 -.5 .3 -.5 .4 .5 .6 .6 1.2 .6 -.2 -.8 -.8 .5 1.2 1.3 .9 2.7 2.9 1.6 2.1 5.9 2.5 .9 2.4 -.4 .9 2.2 1.3 .2 3.5
.8 .9 .1 -2.7 -3.2 -2.7 -2.9 .5 -.6 .9 .7 1.9 1.6 .2 .6 1.3 1.6 3.3 1.8 1.5 2.0 3.7 1.7 2.1 1.9 .1 2.2 1.5 .8 .0 .2 -.5 -.5 -1.2 .5 1.5
1.1 .9 1.3 .1 2.3 1.6 .9 -.3 .3 .2 -.2 .0 1.2 1.9 2.1 1.0 4.6 1.9 -2.2 -1.1 -.8 .8 1.5 1.5 2.2 1.6 -1.3 -2.1 -1.6 .2 -1.6 -1.9 .8 1.4 1.8
1.8 1.5 .1 1.3 2.0 .0 .8 1.5 1.4 .6 .3 .9 1.6 1.9 2.0 2.2 2.7 -1.3 -1.6 -1.8 -.1 -.2 2.1 1.8 1.0 .4 1.9 3.0 2.0 .7 .7 1.5 3.6 3.1
.5 .9 .1 -.3 1.3 2.0 1.2 -.1 .8 .0 .6 .6 .9 .5 1.4 .7 .4 .0 -.6 1.9 -.6 .4 .5 .5 .7 2.9 2.8 .9
-.1 .0 -.5 -1.0 -.4 .2 .0 .6 .3 .5 .3 .5 1.2 1.1 .5 1.1 .3 -.3 .9 -6.4 -2.6 3.0 -.3 .2 -.7 2.1 1.1 2.7 2.1 .4
-.1 .3 .8 .7 .6 -.6 -1.1 -.8 -1.3 -.9 -.6 -1.8 -.4 -1.5 -.7 .3 -1.4 -2.9 -2.8 -4.0 -4.9 -5.2 -1.8 -.3 -2.7 -3.4 -1.7 -.2 .7 .1 -.1
-2.2 -3.8 -6.4 -.6

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
FEBRUARY 1997
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 5 7 6 7 6 5 6 6 8 6 7 7 6 7 11 10 11 7
7 7 7 7 7 8 6 6 6 8 7 8 9 8 8 8 10 8 7 8 6 11 7 9 9 7 9 11
11 8 7 7 8 7 7 5 6 5 5 6 6 8 7 6 7 9 4 4 6 8 8 10 12 12 16 14
6 6 6 6 7 6 6 5 6 5 5 5 5 6 7 7 7 7 7 6 10 7 14 9 10 7 7 7 12
5 6 6 8 7 7 6 6 5 5 6 5 6 7 7 6 7 6 6 6 7 4 6 11 8 7 6 5 6 7 6 6 8
6 6 6 8 9 9 9 8 7 7 6 5 5 6 6 6 6 6 7 8 7 7 6 6 8 7 8 8 7 7 7 7 7 6 6 7
6 5 6 6 7 8 8 7 8 7 6 6 5 6 6 7 7 5 6 6 6 5 6 7 7 11 9 8 8 7 7 6
6 5 6 5 6 6 5 5 6 5 5 5 5 6 6 6 9 5 5 6 6 6 7 7 7 7 8 8 7 6 6 8 8 8
6 6 6 5 5 6 5 5 6 6 5 6 5 5 6 5 5 6 6 8 8 7 7 8 6 7 8 7
6 5 6 6 5 6 5 5 5 6 6 6 6 6 6 6 6 7 5 9 10 8 7 7 7 8 7 8 7 7
6 5 6 7 7 7 6 6 6 7 8 7 8 8 6 7 7 10 7 9 10 12 6 7 9 10 9 10 8 8 8
6 8 10 9

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: February, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12, NOAA-14 500 km.

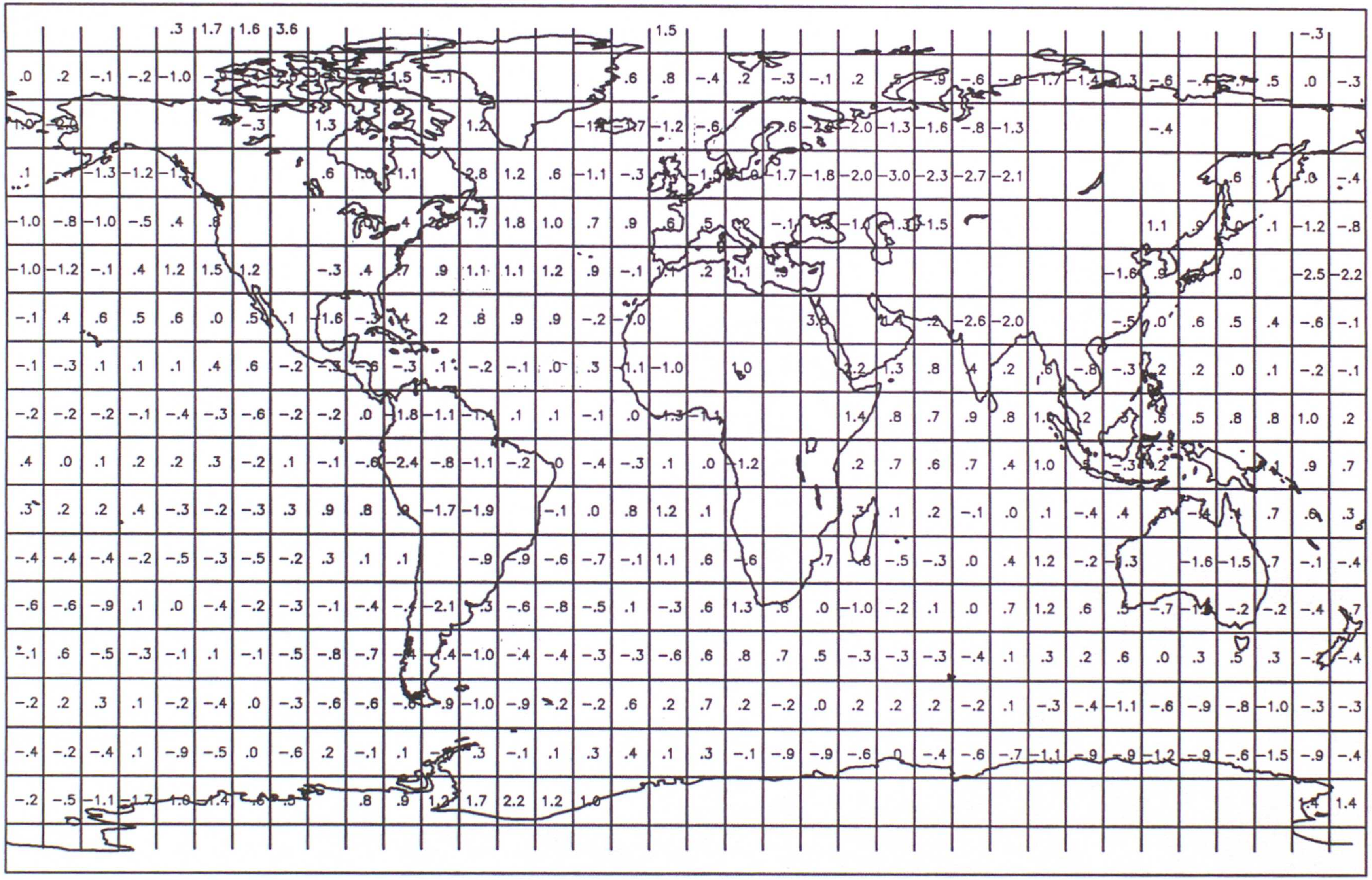
Standard of comparison :Background field from Bracknell global model.

Selection Criteria :All SATEM soundings where number of observations > 30.

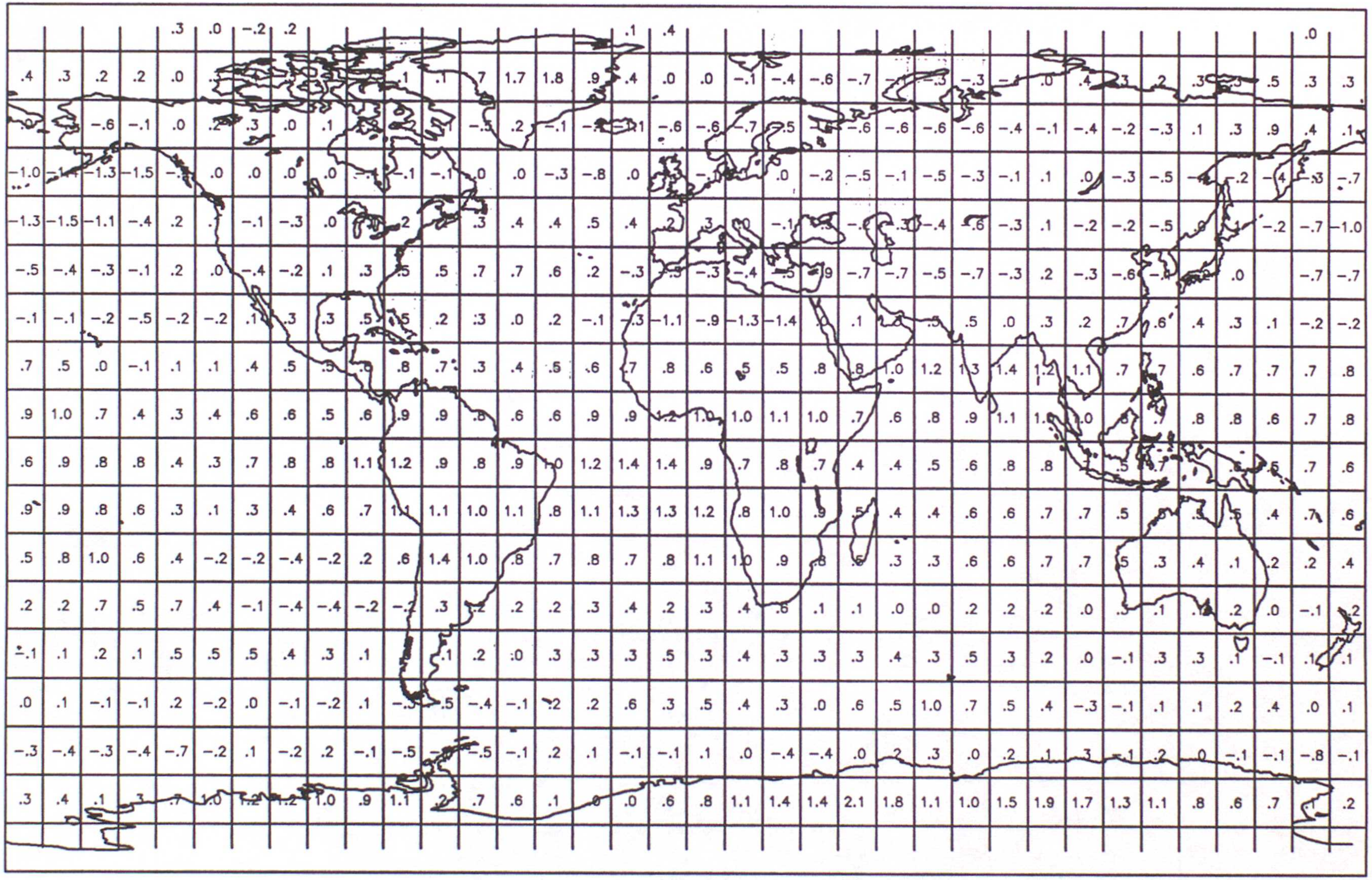
Data Extracted :Layer: 850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

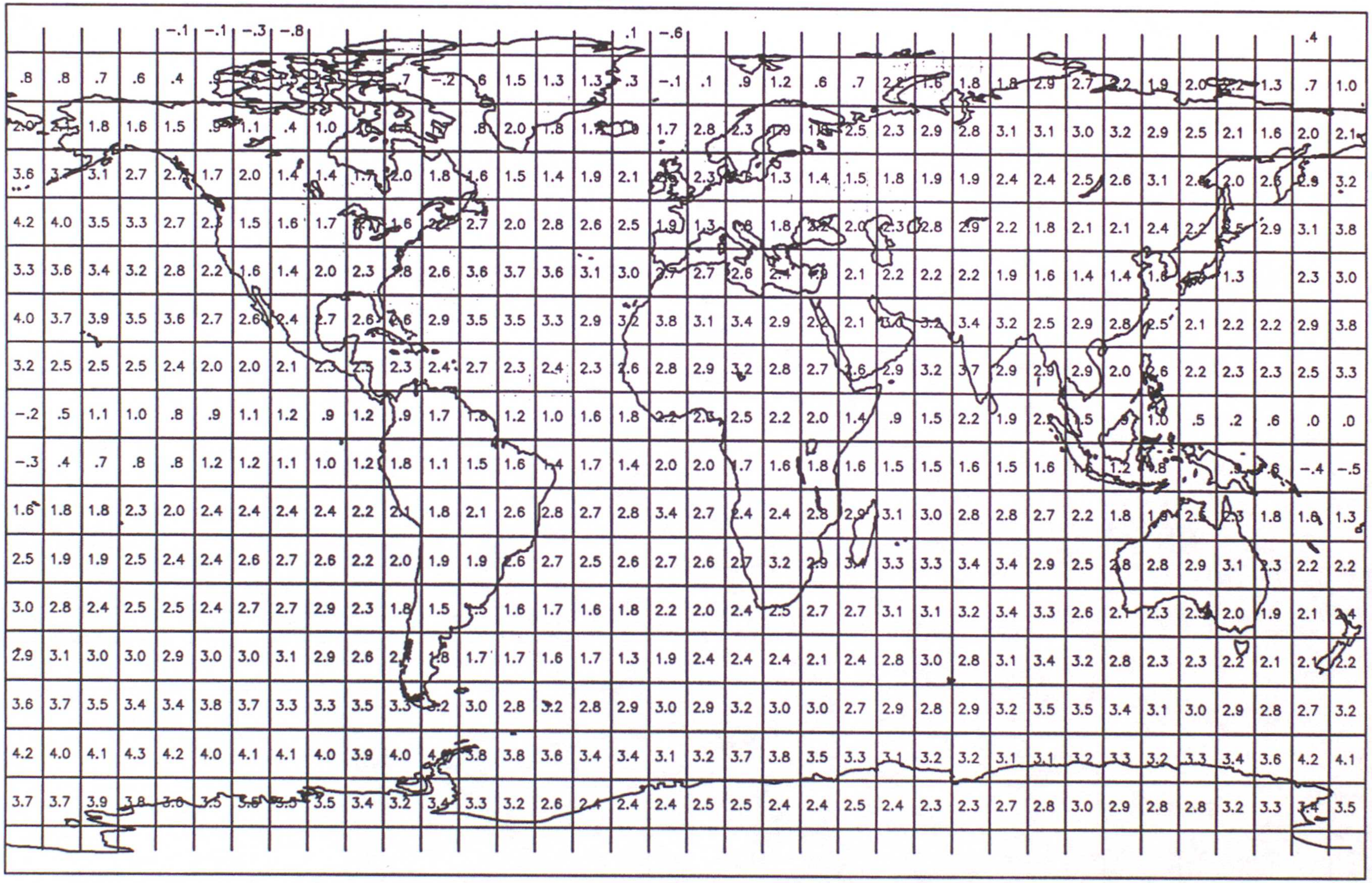
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
FEBRUARY 1997
FIGURE 25
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
FEBRUARY 1997 FIGURE 26
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


.3 .0 -.2 .2 .1 .4 .0
.4 .3 .2 .2 .0 .1 .1 .7 1.7 1.8 .9 .4 .0 .0 -.1 -.4 -.6 -.7 -.3 -.3 .0 .4 .3 .2 .3 .5 .3 .3
-.6 -.1 .0 .2 .3 .0 .1 -.5 .2 -.1 -.6 -.6 -.7 .5 -.6 -.6 -.6 -.6 -.4 -.1 -.4 -.2 -.3 .1 .3 .9 .4 .1
-1.0 -1.3 -1.5 .0 .0 .0 .0 -.1 -.1 .0 .0 -.3 -.8 .0 .0 -.2 -.5 -.1 -.5 -.3 -.1 .1 .0 -.3 -.5 .2 -.3 -.7
-1.3 -1.5 -1.1 -.4 .2 -.1 -.3 .0 .2 .3 .4 .4 .5 .4 .2 .3 .0 -.1 .3 -.4 -.6 -.3 .1 -.2 -.2 -.5 -.2 -.7 -1.0
-.5 -.4 -.3 -.1 .2 .0 -.4 -.2 .1 .3 .5 .5 .7 .7 .6 .2 -.3 -.3 -.3 -.4 -.5 -.9 -.7 -.7 -.5 -.7 -.3 .2 -.3 -.6 .0 -.7 -.7
-.1 -.1 -.2 -.5 -.2 -.2 .1 .3 .3 .5 .5 .2 .3 .0 .2 -.1 -.3 -1.1 -.9 -1.3 -1.4 .1 .5 .0 .3 .2 .7 .6 .4 .3 .1 -.2 -.2
.7 .5 .0 -.1 .1 .1 .4 .5 .5 .8 .7 .3 .4 .5 .6 .7 .8 .6 .5 .5 .8 .8 1.0 1.2 1.3 1.4 1.2 1.1 .7 .7 .6 .7 .7 .7 .8
.9 1.0 .7 .4 .3 .4 .6 .6 .5 .6 .9 .9 .8 .6 .6 .9 .9 1.2 1.0 1.0 1.1 1.0 .7 .6 .8 .9 1.1 1.0 .8 .8 .6 .7 .8
.6 .9 .8 .8 .4 .3 .7 .8 .8 1.1 1.2 .9 .8 .9 1.0 1.2 1.4 1.4 .9 .7 .8 .7 .4 .4 .5 .6 .8 .8 .5 .7 .5 .7 .6
.9 .9 .8 .6 .3 .1 .3 .4 .6 .7 1.1 1.1 1.0 1.1 .8 1.1 1.3 1.3 1.2 .8 1.0 .9 .5 .4 .4 .6 .6 .7 .7 .5 .8 .5 .4 .7 .6
.5 .8 1.0 .6 .4 -.2 -.2 -.4 -.2 .2 .6 1.4 1.0 .8 .7 .8 .7 .8 1.1 1.0 .9 .8 .6 .3 .3 .6 .6 .7 .7 .5 .3 .4 .1 .2 .2 .4
.2 .2 .7 .5 .7 .4 -.1 -.4 -.4 -.2 -.2 .3 .2 .2 .2 .3 .4 .2 .3 .4 .6 .1 .1 .0 .0 .2 .2 .2 .0 .1 .1 .2 .0 -.1 .2
.1 .1 .2 .1 .5 .5 .5 .4 .3 .1 .1 .2 .0 .3 .3 .3 .5 .3 .4 .3 .3 .3 .4 .3 .5 .3 .2 .0 -.1 .3 .3 .1 -.1 .1 .1
.0 .1 -.1 -.1 .2 -.2 .0 -.1 -.2 .1 -.3 .5 -.4 -.1 .2 .2 .6 .3 .5 .4 .3 .0 .6 .5 1.0 .7 .5 .4 -.3 -.1 .1 .1 .2 .4 .0 .1
-.3 -.4 -.3 -.4 -.7 -.2 .1 -.2 .2 -.1 -.5 -.5 -.1 .2 .1 -.1 -.1 .1 .0 -.4 -.4 .0 .2 .3 .0 .2 .1 .3 -.1 .2 .0 -.1 -.1 -.8 -.1
.3 .4 .1 .3 .7 1.0 1.2 1.2 1.0 .9 1.1 .2 .7 .6 .1 .0 .0 .6 .8 1.1 1.4 1.4 2.1 1.8 1.1 1.0 1.5 1.9 1.7 1.3 1.1 .8 .6 .7 .1 .2

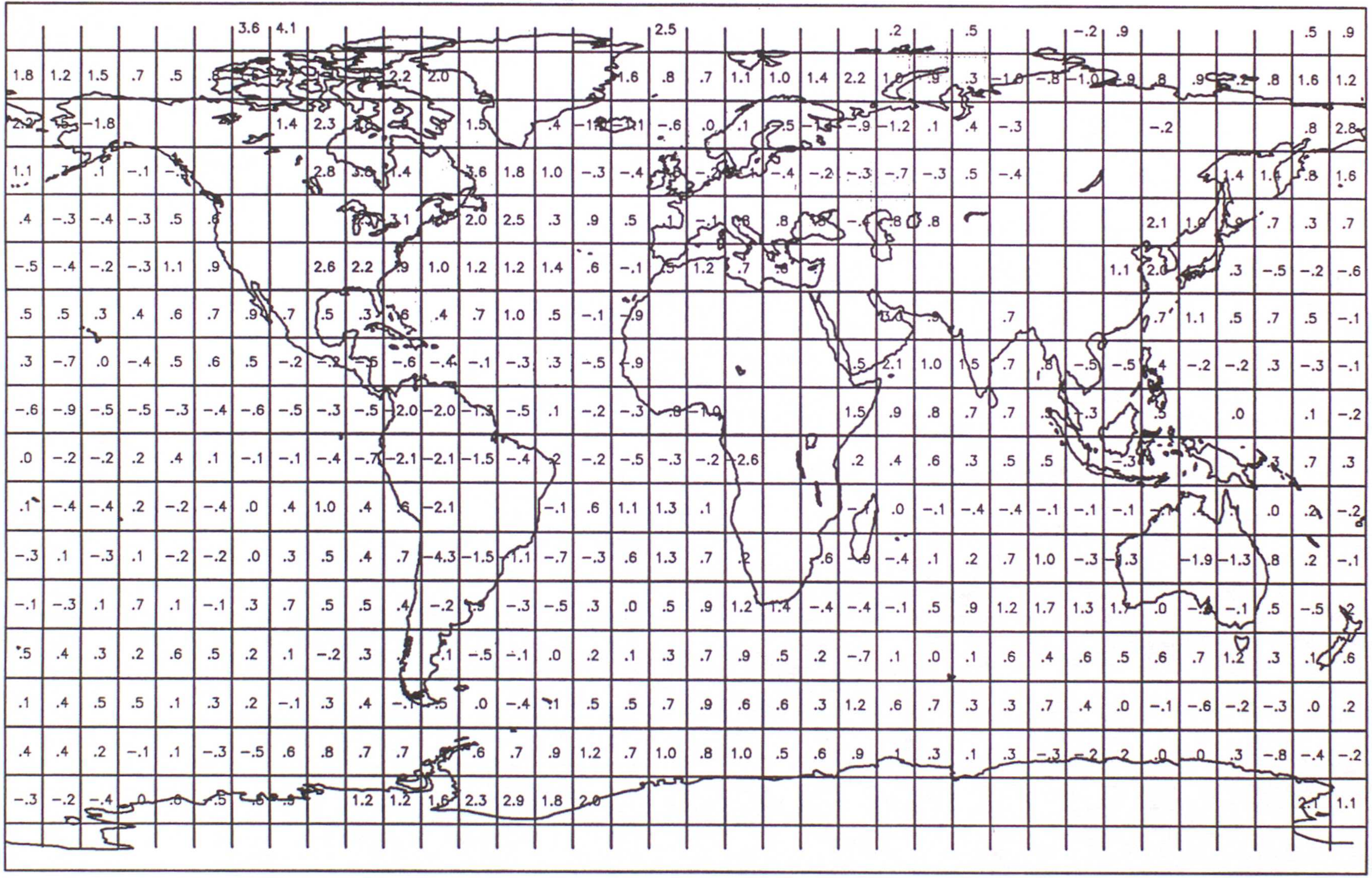
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
FEBRUARY 1997
FIGURE 27
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



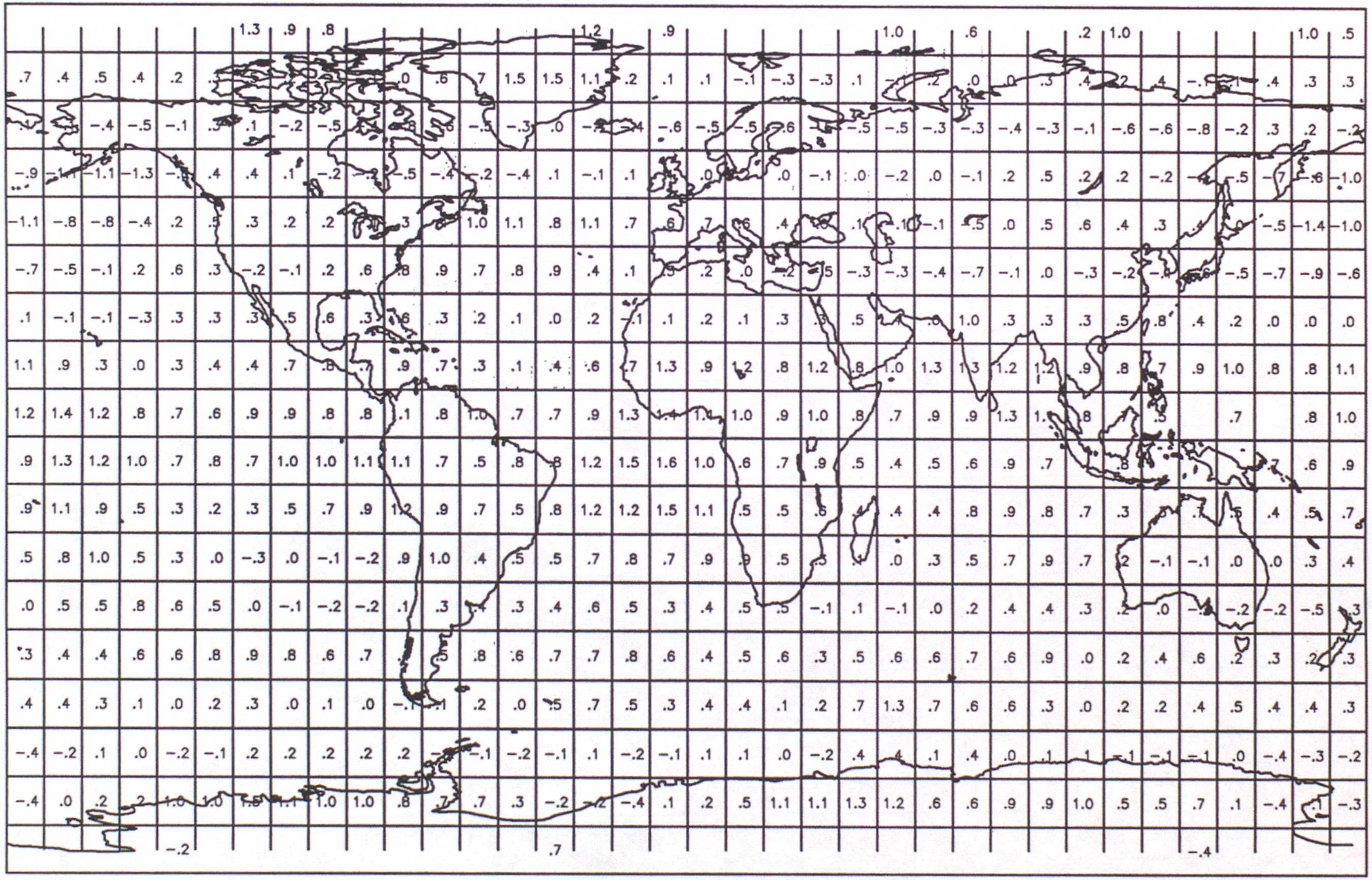
				-.1	-.1	-.3	-.8									.1	-.6																	.4	
.8	.8	.7	.6	.4	[illegible]	.6	[illegible]	[illegible]	[illegible]	.7	-.2	.6	1.5	1.3	1.3	.3	-.1	.1	.9	1.2	.6	.7	2.2	1.6	1.8	1.8	2.9	2.7	2.2	1.9	2.0	2.2	1.3	.7	1.0
2.0	2.1	1.8	1.6	1.5	.9	1.1	.4	1.0	[illegible]	[illegible]	[illegible]	.8	2.0	1.8	1.7	[illegible]	1.7	2.8	2.3	1.9	1.8	2.5	2.3	2.9	2.8	3.1	3.1	3.0	3.2	2.9	2.5	2.1	1.6	2.0	2.1
3.6	3.7	3.1	2.7	2.7	1.7	2.0	1.4	1.4	1.7	2.0	1.8	1.6	1.5	1.4	1.9	2.1	[illegible]	2.3	[illegible]	1.3	1.4	1.5	1.8	1.9	1.9	2.4	2.4	2.5	2.6	3.1	2.6	2.0	2.6	2.9	3.2
4.2	4.0	3.5	3.3	2.7	2.3	1.5	1.6	1.7	[illegible]	1.6	2.2	2.7	2.0	2.8	2.6	2.5	1.9	1.3	[illegible]	1.8	2.2	2.0	2.3	2.8	2.9	2.2	1.8	2.1	2.1	2.4	2.2	2.5	2.9	3.1	3.8
3.3	3.6	3.4	3.2	2.8	2.2	1.6	1.4	2.0	2.3	[illegible]	2.6	3.6	3.7	3.6	3.1	3.0	2.7	2.7	2.6	2.4	[illegible]	2.1	2.2	2.2	2.2	1.9	1.6	1.4	1.4	1.6	[illegible]	1.3		2.3	3.0
4.0	3.7	3.9	3.5	3.6	2.7	2.6	2.4	2.7	2.6	2.6	2.9	3.5	3.5	3.3	2.9	3.2	3.8	3.1	3.4	2.9	2.2	2.1	3.0	3.2	3.4	3.2	2.5	2.9	2.8	2.5	2.1	2.2	2.2	2.9	3.8
3.2	2.5	2.5	2.5	2.4	2.0	2.0	2.1	2.3	2.5	2.3	2.4	2.7	2.3	2.4	2.3	2.6	2.8	2.9	3.2	2.8	2.7	2.6	2.9	3.2	3.7	2.9	2.9	2.9	2.0	2.6	2.2	2.3	2.3	2.5	3.3
-.2	.5	1.1	1.0	.8	.9	1.1	1.2	.9	1.2	.9	1.7	1.8	1.2	1.0	1.6	1.8	2.2	[illegible]	2.5	2.2	2.0	1.4	.9	1.5	2.2	1.9	[illegible]	1.5	.9	1.0	.5	.2	.6	.0	.0
-.3	.4	.7	.8	.8	1.2	1.2	1.1	1.0	1.2	1.8	1.1	1.5	1.6	1.4	1.7	1.4	2.0	2.0	1.7	1.6	1.8	1.6	1.5	1.5	1.6	1.5	1.6	[illegible]	1.2	[illegible]		[illegible]	.6	-.4	-.5
1.6	1.8	1.8	2.3	2.0	2.4	2.4	2.4	2.4	2.2	2.1	1.8	2.1	2.6	2.8	2.7	2.8	3.4	2.7	2.4	2.4	2.8	2.9	3.1	3.0	2.8	2.8	2.7	2.2	1.8	[illegible]	2.5	2.3	1.8	1.6	1.3
2.5	1.9	1.9	2.5	2.4	2.4	2.6	2.7	2.6	2.2	2.0	1.9	1.9	2.6	2.7	2.5	2.6	2.7	2.6	2.7	3.2	2.9	[illegible]	3.3	3.3	3.4	3.4	2.9	2.5	2.8	2.8	2.9	3.1	2.3	2.2	2.2
3.0	2.8	2.4	2.5	2.5	2.4	2.7	2.7	2.9	2.3	1.8	1.5	[illegible]	1.6	1.7	1.6	1.8	2.2	2.0	2.4	2.5	2.7	2.7	3.1	3.1	3.2	3.4	3.3	2.6	2.1	2.3	2.5	2.0	1.9	2.1	2.4
2.9	3.1	3.0	3.0	2.9	3.0	3.0	3.1	2.9	2.6	[illegible]	1.8	1.7	1.7	1.6	1.7	1.3	1.9	2.4	2.4	2.4	2.1	2.4	2.8	3.0	2.8	3.1	3.4	3.2	2.8	2.3	2.3	2.2	2.1	2.1	2.2
3.6	3.7	3.5	3.4	3.4	3.8	3.7	3.3	3.3	3.5	3.3	[illegible]	3.0	2.8	3.2	2.8	2.9	3.0	2.9	3.2	3.0	3.0	2.7	2.9	2.8	2.9	3.2	3.5	3.5	3.4	3.1	3.0	2.9	2.8	2.7	3.2
4.2	4.0	4.1	4.3	4.2	4.0	4.1	4.1	4.0	3.9	4.0	[illegible]	3.8	3.8	3.6	3.4	3.4	3.1	3.2	3.7	3.8	3.5	3.3	3.1	3.2	3.2	3.1	3.1	3.2	3.3	3.2	3.3	3.4	3.6	4.2	4.1
3.7	3.7	3.9	3.8	3.6	3.5	3.6	3.5	3.5	3.4	3.2	3.4	3.3	3.2	2.6	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.5	2.4	2.3	2.3	2.7	2.8	3.0	2.9	2.8	2.8	3.2	3.3	3.4	3.5

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
FEBRUARY 1997
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28


3.6 4.1 2.5 .2 .5 −.2 .9 .5 .9
1.8 1.2 1.5 .7 .5 2.2 2.0 1.6 .8 .7 1.1 1.0 1.4 2.2 1.0 .9 .3 −1.0 −.8 −1.0 .9 .8 .9 .2 .8 1.6 1.2
2.2 1.5 −1.8 1.4 2.3 1.5 .4 −1.1 −.6 .0 .1 .5 −.9 −1.2 .1 .4 −.3 −.2 .8 2.8
1.1 .1 −.1 2.8 3.6 1.4 3.6 1.8 1.0 −.3 −.4 −.4 −.2 −.3 −.7 −.3 .5 −.4 1.4 1.4 .8 1.6
.4 −.3 −.4 −.3 .5 3.1 2.0 2.5 .3 .9 .5 .8 .8 .8 2.1 .7 .3 .7
−.5 −.4 −.2 −.3 1.1 .9 2.6 2.2 .9 1.0 1.2 1.2 1.4 .6 −.1 1.2 .7 1.1 2.0 .3 −.5 −.2 −.6
.5 .5 .3 .4 .6 .7 .9 .7 .5 .3 .6 .4 .7 1.0 .5 −.1 −.9 .7 .7 1.1 .5 .7 .5 −.1
.3 −.7 .0 −.4 .5 .6 .5 −.2 −.2 −.5 −.6 −.4 −.1 −.3 .3 −.5 −.9 .5 2.1 1.0 1.5 .7 .8 −.5 −.5 .4 −.2 −.2 .3 −.3 −.1
−.6 −.9 −.5 −.5 −.3 −.4 −.6 −.5 −.3 −.5 −2.0 −2.0 −1.3 −.5 .1 −.2 −.3 −.8 −1.0 1.5 .9 .8 .7 .7 .3 .3 .5 .0 .1 −.2
.0 −.2 −.2 .2 .4 .1 −.1 −.1 −.4 −.7 −2.1 −2.1 −1.5 −.4 .2 −.2 −.5 −.3 −.2 2.6 .2 .4 .6 .3 .5 .5 −.3 .3 .7 .3
.1 −.4 −.4 .2 −.2 −.4 .0 .4 1.0 .4 .6 −2.1 −.1 .6 1.1 1.3 .1 −.1 .0 −.1 −.4 −.4 −.1 −.1 −.1 −.1 .0 .2 −.2
−.3 .1 −.3 .1 −.2 −.2 .0 .3 .5 .4 .7 −4.3 −1.5 1.1 −.7 −.3 .6 1.3 .7 .2 .6 −.9 −.4 .1 .2 .7 1.0 −.3 1.3 −1.9 −1.3 .8 .2 −.1
−.1 −.3 .1 .7 .1 −.1 .3 .7 .5 .5 .4 −.2 .9 −.3 −.5 .3 .0 .5 .9 1.2 1.4 −.4 −.4 −.1 .5 .9 1.2 1.7 1.3 1.7 .0 −.4 −.1 .5 −.5 .2
.5 .4 .3 .2 .6 .5 .2 .1 −.2 .3 .1 −.5 −.1 .0 .2 .1 .3 .7 .9 .5 .2 −.7 .1 .0 .1 .6 .4 .6 .5 .6 .7 1.2 .3 .1 .6
.1 .4 .5 .5 .1 .3 .2 −.1 .3 .4 −.1 .5 .0 −.4 .1 .5 .5 .7 .9 .6 .6 .3 1.2 .6 .7 .3 .3 .7 .4 .0 −.1 −.6 −.2 −.3 .0 .2
.4 .4 .2 −.1 .1 −.3 −.5 .6 .8 .7 .7 .6 .7 .9 1.2 .7 1.0 .8 1.0 .5 .6 .9 .1 .3 .1 .3 −.3 −.2 .2 .0 .0 .3 −.8 −.4 −.2
−.3 −.2 −.4 .0 .6 .5 .6 .5 1.2 1.2 1.6 2.3 2.9 1.8 2.0 2.1 1.1

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
FEBRUARY 1997
FIGURE 29
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


1.3 .9 .8 1.2 .9 1.0 .6 .2 1.0 1.0 .5
.7 .4 .5 .4 .2 .0 .6 .7 1.5 1.5 1.1 .2 .1 .1 –.1 –.3 –.3 .1 .2 .0 .0 .3 .4 .2 .4 –.1 .4 .3 .3
–.4 –.5 –.1 .1 –.2 –.5 –.5 –.3 .0 –.4 –.6 –.5 –.5 .6 –.5 –.5 –.3 –.3 –.4 –.3 –.1 –.6 –.6 –.8 –.2 .3 .2 –.2
–.9 –1.1 –1.3 .4 .4 .1 –.2 .5 –.4 –.2 –.4 .1 –.1 .1 .0 .0 –.1 .0 –.2 .0 –.1 .2 .5 .2 .2 –.2 .5 –.7 –.6 –1.0
–1.1 –.8 –.8 –.4 .2 .3 .2 .2 .3 1.0 1.1 .8 1.1 .7 .6 .7 .6 .4 .1 –.1 .5 .0 .5 .6 .4 .3 –.5 –1.4 –1.0
–.7 –.5 –.1 .2 .6 .3 –.2 –.1 .2 .6 .8 .9 .7 .8 .9 .4 .1 .5 .2 .0 .2 .5 –.3 –.3 –.4 –.7 –.1 .0 –.3 –.2 .6 –.5 –.7 –.9 –.6
.1 –.1 –.1 –.3 .3 .3 .3 .5 .6 .3 .6 .3 .2 .1 .0 .2 –.1 .1 .2 .1 .3 .5 1.0 .3 .3 .3 .5 .8 .4 .2 .0 .0 .0
1.1 .9 .3 .0 .3 .4 .4 .7 .8 .9 .7 .3 .1 .4 .6 .7 1.3 .9 1.2 .8 1.2 .8 1.0 1.3 1.3 1.2 1.2 .9 .8 .7 .9 1.0 .8 .8 1.1
1.2 1.4 1.2 .8 .7 .6 .9 .9 .8 .8 .1 .8 1.0 .7 .7 .9 1.3 1.4 1.4 1.0 .9 1.0 .8 .7 .9 .9 1.3 1.3 .8 .5 .7 .8 1.0
.9 1.3 1.2 1.0 .7 .8 .7 1.0 1.0 1.1 1.1 .7 .5 .8 .8 1.2 1.5 1.6 1.0 .6 .7 .9 .5 .4 .5 .6 .9 .7 .8 .7 .6 .9
.9 1.1 .9 .5 .3 .2 .3 .5 .7 .9 1.2 .9 .7 .5 .8 1.2 1.2 1.5 1.1 .5 .5 .6 .4 .4 .4 .8 .9 .8 .7 .3 .7 .5 .4 .5 .7
.5 .8 1.0 .5 .3 .0 –.3 .0 –.1 –.2 .9 1.0 .4 .5 .5 .7 .8 .7 .9 .9 .5 .5 .1 .0 .3 .5 .7 .9 .7 .2 –.1 –.1 .0 .0 .3 .4
.0 .5 .5 .8 .6 .5 .0 –.1 –.2 –.2 .1 .3 .4 .3 .4 .6 .5 .3 .4 .5 .5 –.1 .1 –.1 .0 .2 .4 .4 .3 .2 .0 –.2 –.2 –.2 –.5 .3
.3 .4 .4 .6 .6 .8 .9 .8 .6 .7 .5 .8 .6 .7 .7 .8 .6 .4 .5 .6 .3 .5 .6 .6 .7 .6 .9 .0 .2 .4 .6 .2 .3 .2 .3
.4 .4 .3 .1 .0 .2 .3 .0 .1 .0 –.1 .1 .2 .0 .5 .7 .5 .3 .4 .4 .1 .2 .7 1.3 .7 .6 .6 .3 .0 .2 .2 .4 .5 .4 .4 .3
–.4 –.2 .1 .0 –.2 –.1 .2 .2 .2 .2 .2 –.1 –.2 –.1 .1 –.2 –.1 .1 .1 .0 –.2 .4 .4 .1 .4 .0 .1 .1 –.1 –.1 –.1 .0 –.4 –.3 –.2
–.4 .0 .2 .2 1.0 1.0 1.0 1.1 1.0 1.0 .8 .7 .7 .3 –.2 –.2 –.4 .1 .2 .5 1.1 1.1 1.3 1.2 .6 .6 .9 .9 1.0 .5 .5 .7 .1 –.4 .1 –.3
–.2 .7 –.4

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
FEBRUARY 1997
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

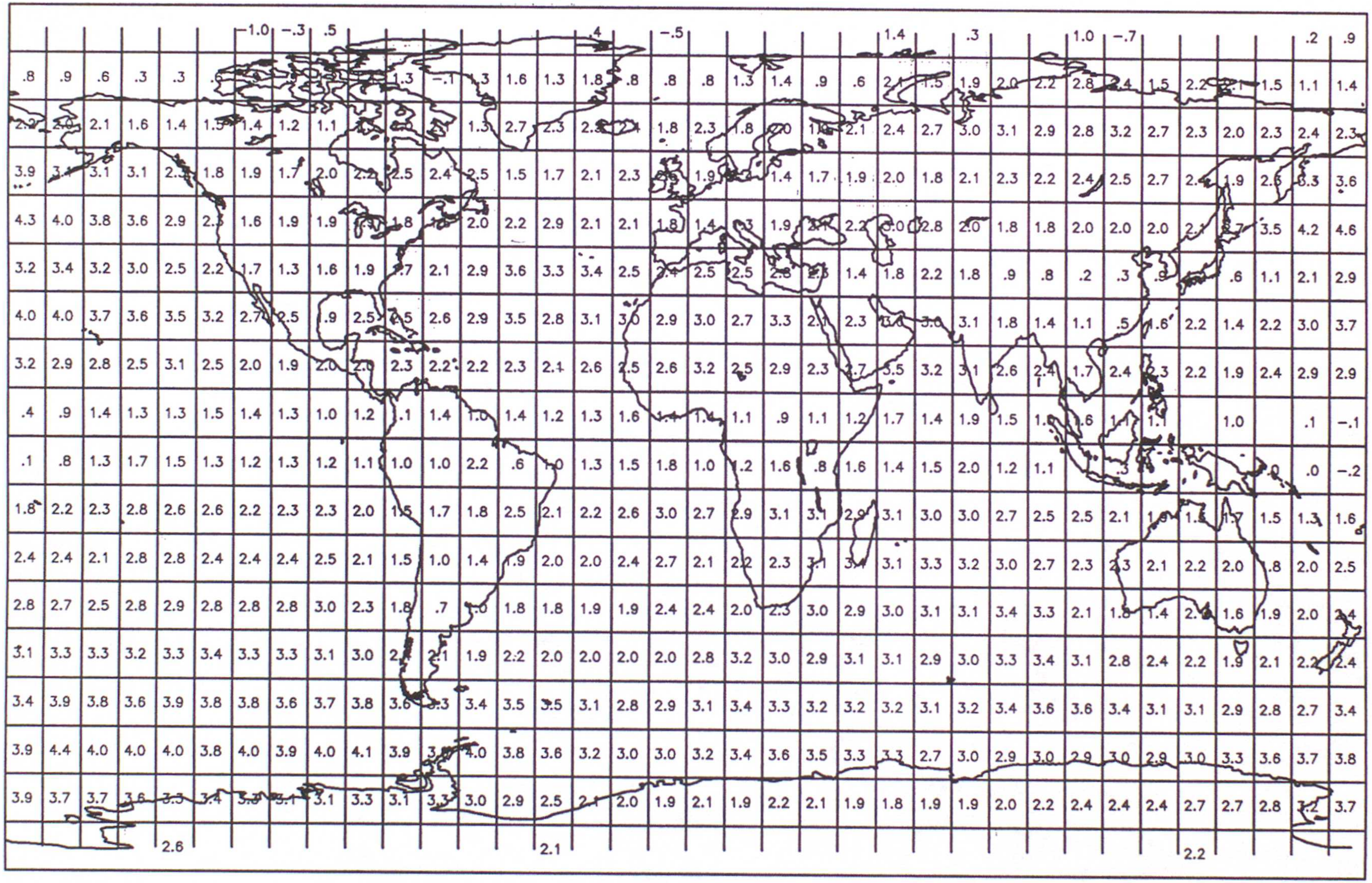

-1.0 -.3 .5 .4 -.5 1.4 .3 1.0 -.7 .2 .9
.8 .9 .6 .3 .3 1.3 -.1 1.3 1.6 1.3 1.8 .8 .8 .8 1.3 1.4 .9 .6 2.1 1.5 1.9 2.0 2.2 2.8 2.4 1.5 2.2 2.1 1.5 1.1 1.4
2.2 2.0 2.1 1.6 1.4 1.5 1.4 1.2 1.1 1.3 2.7 2.3 2.3 2.4 1.8 2.3 1.8 2.0 1.9 2.1 2.4 2.7 3.0 3.1 2.9 2.8 3.2 2.7 2.3 2.0 2.3 2.4 2.3
3.9 3.1 3.1 3.1 2.3 1.8 1.9 1.7 2.0 2.2 2.5 2.4 2.5 1.5 1.7 2.1 2.3 2.5 1.9 2.2 1.4 1.7 1.9 2.0 1.8 2.1 2.3 2.2 2.4 2.5 2.7 2.4 1.9 2.5 3.3 3.6
4.3 4.0 3.8 3.6 2.9 2.3 1.6 1.9 1.9 2.3 1.8 1.8 2.0 2.2 2.9 2.1 2.1 1.8 1.4 1.3 1.9 2.1 2.2 3.0 2.8 2.0 1.8 1.8 2.0 2.0 2.0 2.1 3.7 3.5 4.2 4.6
3.2 3.4 3.2 3.0 2.5 2.2 1.7 1.3 1.6 1.9 1.7 2.1 2.9 3.6 3.3 3.4 2.5 2.4 2.5 2.5 2.8 2.3 1.4 1.8 2.2 1.8 .9 .8 .2 .3 .9 .6 1.1 2.1 2.9
4.0 4.0 3.7 3.6 3.5 3.2 2.7 2.5 1.9 2.5 2.5 2.6 2.9 3.5 2.8 3.1 3.0 2.9 3.0 2.7 3.3 2.1 2.3 3.6 3.0 3.1 1.8 1.4 1.1 .5 1.6 2.2 1.4 2.2 3.0 3.7
3.2 2.9 2.8 2.5 3.1 2.5 2.0 1.9 2.0 2.0 2.3 2.2 2.2 2.3 2.1 2.6 2.5 2.6 3.2 2.5 2.9 2.3 2.7 3.5 3.2 3.1 2.6 2.4 1.7 2.4 2.3 2.2 1.9 2.4 2.9 2.9
.4 .9 1.4 1.3 1.3 1.5 1.4 1.3 1.0 1.2 .1 1.4 1.0 1.4 1.2 1.3 1.6 1.4 1.4 1.1 .9 1.1 1.2 1.7 1.4 1.9 1.5 1.5 1.6 1.1 1.1 1.0 .1 -.1
.1 .8 1.3 1.7 1.5 1.3 1.2 1.3 1.2 1.1 1.0 1.0 2.2 .6 1.0 1.3 1.5 1.8 1.0 1.2 1.6 .8 1.6 1.4 1.5 2.0 1.2 1.1 .3 .0 .0 -.2
1.8 2.2 2.3 2.8 2.6 2.6 2.2 2.3 2.3 2.0 1.5 1.7 1.8 2.5 2.1 2.2 2.6 3.0 2.7 2.9 3.1 3.1 2.9 3.1 3.0 3.0 2.7 2.5 2.5 2.1 1.9 1.5 1.7 1.5 1.3 1.6
2.4 2.4 2.1 2.8 2.8 2.4 2.4 2.4 2.5 2.1 1.5 1.0 1.4 1.9 2.0 2.0 2.4 2.7 2.1 2.2 2.3 3.1 3.4 3.1 3.3 3.2 3.0 2.7 2.3 2.3 2.1 2.2 2.0 1.8 2.0 2.5
2.8 2.7 2.5 2.8 2.9 2.8 2.8 2.8 3.0 2.3 1.8 .7 1.0 1.8 1.8 1.9 1.9 2.4 2.4 2.0 2.3 3.0 2.9 3.0 3.1 3.1 3.4 3.3 2.1 1.8 1.4 2.3 1.6 1.9 2.0 2.4
3.1 3.3 3.3 3.2 3.3 3.4 3.3 3.3 3.1 3.0 2.1 2.1 1.9 2.2 2.0 2.0 2.0 2.0 2.8 3.2 3.0 2.9 3.1 3.1 2.9 3.0 3.3 3.4 3.1 2.8 2.4 2.2 1.9 2.1 2.2 2.4
3.4 3.9 3.8 3.6 3.9 3.8 3.8 3.6 3.7 3.8 3.6 3.3 3.4 3.5 3.5 3.1 2.8 2.9 3.1 3.4 3.3 3.2 3.2 3.2 3.1 3.2 3.4 3.6 3.6 3.4 3.1 3.1 2.9 2.8 2.7 3.4
3.9 4.4 4.0 4.0 4.0 3.8 4.0 3.9 4.0 4.1 3.9 3.4 4.0 3.8 3.6 3.2 3.0 3.0 3.2 3.4 3.6 3.5 3.3 3.3 2.7 3.0 2.9 3.0 2.9 3.0 2.9 3.0 3.3 3.6 3.7 3.8
3.9 3.7 3.7 3.6 3.3 3.4 3.3 3.1 3.1 3.3 3.1 3.3 3.0 2.9 2.5 2.1 2.0 1.9 2.1 1.9 2.2 2.1 1.9 1.8 1.9 1.9 2.0 2.2 2.4 2.4 2.4 2.7 2.7 2.8 3.2 3.7
2.6 2.1 2.2

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
13903	25.2	-33.3	ALL	MSLP	SUR	218	0	0	0.9	0.2	1.0
13905	24.0	-43.6	ALL	MSLP	SUR	222	0	0	1.0	-0.1	1.0
13906	15.3	-44.6	ALL	MSLP	SUR	218	0	0	1.2	0.2	1.2
13910	22.8	-43.1	ALL	MSLP	SUR	231	0	0	1.1	0.0	1.1
13911	23.5	-52.7	ALL	MSLP	SUR	224	0	0	1.3	0.3	1.4
13912	21.1	-58.2	ALL	MSLP	SUR	231	0	0	1.4	0.7	1.6
13913	16.5	-42.6	ALL	MSLP	SUR	232	0	0	1.1	0.4	1.1
13915	17.4	-41.6	ALL	MSLP	SUR	208	0	0	1.0	-0.3	1.0
39701	13.9	-77.5	ALL	MSLP	SUR	1	0	0	0.0	1.5	1.5
41529	39.1	-45.8	ALL	MSLP	SUR	204	0	0	1.9	0.5	2.0
41530	35.0	-42.4	ALL	MSLP	SUR	195	0	0	1.0	0.3	1.1
41611	14.1	-50.5	ALL	MSLP	SUR	166	0	0	1.1	-0.5	1.2
41612	17.3	-55.2	ALL	MSLP	SUR	182	0	0	1.0	-0.2	1.1
41613	17.1	-54.2	ALL	MSLP	SUR	174	0	0	1.1	-0.3	1.1
41614	14.7	-60.9	ALL	MSLP	SUR	62	0	0	1.0	0.1	1.0
41922	23.1	-43.4	ALL	MSLP	SUR	221	0	0	1.0	0.7	1.3
41924	17.6	-54.1	ALL	MSLP	SUR	232	0	0	1.3	-0.4	1.3
44513	45.0	-33.5	ALL	MSLP	SUR	238	0	0	2.3	-0.3	2.3
44601	47.7	-41.1	ALL	MSLP	SUR	491	0	0	2.5	0.7	2.6
44603	48.5	-41.0	ALL	MSLP	SUR	248	108	44	4.3	-0.2	4.3
44604	48.0	-38.8	ALL	MSLP	SUR	71	0	0	1.4	0.5	1.5
44605	48.7	-39.9	ALL	MSLP	SUR	247	0	0	2.3	-0.2	2.3
44606	45.5	-35.1	ALL	MSLP	SUR	475	0	0	2.5	0.1	2.5
44607	47.9	-31.7	ALL	MSLP	SUR	506	1	0	2.7	0.4	2.8
44608	50.6	-35.2	ALL	MSLP	SUR	288	0	0	2.7	-0.7	2.8
44614	64.6	-24.6	ALL	MSLP	SUR	928	5	1	2.0	0.3	2.0
44624	53.5	-34.4	ALL	MSLP	SUR	720	3	0	2.4	-1.3	2.7
44726	54.0	-25.0	ALL	MSLP	SUR	719	7	1	2.6	-0.2	2.6
44728	60.5	-31.1	ALL	MSLP	SUR	910	1	0	1.8	0.0	1.8
44742	44.3	-35.9	ALL	MSLP	SUR	390	0	0	2.2	-0.3	2.2
44743	48.5	-24.4	ALL	MSLP	SUR	463	3	1	2.5	0.0	2.5
44760	31.0	-61.7	ALL	MSLP	SUR	268	0	0	1.5	-0.2	1.5
44762	41.0	-34.2	ALL	MSLP	SUR	363	0	0	1.5	0.1	1.5
44763	63.5	-17.0	ALL	MSLP	SUR	1452	2	0	2.0	-0.5	2.0
44764	57.6	-34.6	ALL	MSLP	SUR	850	6	1	2.0	-1.0	2.2
44766	55.8	-11.0	ALL	MSLP	SUR	1197	4	0	2.6	-0.7	2.7
44767	62.5	-17.8	ALL	MSLP	SUR	1496	6	0	2.1	0.0	2.1
44770	27.3	-68.0	ALL	MSLP	SUR	460	4	1	1.3	0.0	1.3
44772	62.1	-8.0	ALL	MSLP	SUR	962	3	0	2.7	-0.2	2.7
44776	53.9	-24.1	ALL	MSLP	SUR	709	6	1	2.5	-0.2	2.5
44777	59.7	-15.5	ALL	MSLP	SUR	855	2	0	2.2	0.3	2.2
44778	61.4	-14.0	ALL	MSLP	SUR	827	1	0	2.2	0.2	2.2
44779	45.7	-39.5	ALL	MSLP	SUR	561	1	0	2.6	0.3	2.6
44780	53.4	-20.6	ALL	MSLP	SUR	398	0	0	2.3	-0.4	2.4
44910	57.4	-50.8	ALL	MSLP	SUR	127	0	0	1.2	-0.2	1.2
44911	52.3	-33.6	ALL	MSLP	SUR	39	0	0	1.6	-0.3	1.6
44918	58.1	-52.2	ALL	MSLP	SUR	53	0	0	1.5	-0.6	1.6
44919	57.1	-49.4	ALL	MSLP	SUR	18	0	0	1.0	0.4	1.1
44923	59.1	-51.6	ALL	MSLP	SUR	50	2	4	2.6	-0.6	2.7
44924	58.4	-48.8	ALL	MSLP	SUR	3	0	0	0.4	0.6	0.7
47541	61.6	-63.4	ALL	MSLP	SUR	181	0	0	1.3	-0.8	1.5
62503	36.0	-13.3	ALL	MSLP	SUR	445	0	0	0.7	0.1	0.7
62507	35.2	-18.2	ALL	MSLP	SUR	479	0	0	1.0	0.5	1.1
62508	51.3	-16.8	ALL	MSLP	SUR	508	0	0	2.3	0.6	2.4
62510	38.6	-14.4	ALL	MSLP	SUR	326	0	0	0.7	0.3	0.8
62513	45.4	-18.0	ALL	MSLP	SUR	229	0	0	1.4	0.7	1.6
62515	45.4	-14.3	ALL	MSLP	SUR	493	0	0	1.3	0.0	1.3
62517	50.0	-13.3	ALL	MSLP	SUR	491	0	0	1.9	0.0	1.9
62518	42.1	-18.9	ALL	MSLP	SUR	111	0	0	2.3	0.1	2.3
62551	45.9	-8.9	ALL	MSLP	SUR	403	0	0	1.3	0.3	1.3

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
62697	58.1	-27.5	ALL	MSLP	SUR	858	2	0	2.1	0.3	2.2
62712	50.8	-33.1	ALL	MSLP	SUR	417	0	0	2.5	-0.6	2.6
62713	44.7	-30.8	ALL	MSLP	SUR	526	3	1	2.3	0.6	2.4
62714	38.9	-28.1	ALL	MSLP	SUR	302	0	0	1.0	-0.2	1.0
62803	55.4	-30.7	ALL	MSLP	SUR	1363	2	0	2.4	-0.9	2.6
62804	49.8	-24.2	ALL	MSLP	SUR	397	0	0	2.4	-0.7	2.5
62927	46.6	-23.2	ALL	MSLP	SUR	4	0	0	0.5	0.5	0.7
62929	59.0	-29.5	ALL	MSLP	SUR	1	0	0	0.0	-5.7	5.7
64561	64.7	-29.0	ALL	MSLP	SUR	894	5	1	1.9	-0.2	1.9
64562	61.2	-29.3	ALL	MSLP	SUR	1278	3	0	1.8	-0.3	1.8
65593	59.5	-33.2	ALL	MSLP	SUR	233	9	4	2.3	-0.7	2.4
65594	60.4	-24.6	ALL	MSLP	SUR	1477	2	0	2.3	-0.1	2.3
65595	62.1	-19.4	ALL	MSLP	SUR	1389	3	0	2.2	-0.3	2.3
65596	62.2	-52.3	ALL	MSLP	SUR	395	19	5	3.0	-1.3	3.2
65598	63.9	-26.9	ALL	MSLP	SUR	1332	9	1	1.9	-0.1	1.9
65599	51.7	-31.4	ALL	MSLP	SUR	1010	1	0	2.7	-0.9	2.9
WIND SPEED											
39701	13.9	-77.5	ALL	SPEED	SUR	1	0	0	0.0	-0.4	0.4
41529	39.1	-45.8	ALL	SPEED	SUR	182	0	0	2.5	-5.2	5.8
41530	35.0	-42.4	ALL	SPEED	SUR	193	0	0	1.6	-1.8	2.4
41611	14.1	-50.5	ALL	SPEED	SUR	167	0	0	1.0	0.1	1.0
41612	17.3	-55.2	ALL	SPEED	SUR	182	0	0	1.4	-2.0	2.4
41613	17.1	-54.2	ALL	SPEED	SUR	171	0	0	1.0	-1.7	2.0
44513	45.0	-33.5	ALL	SPEED	SUR	237	0	0	3.3	-4.6	5.7
44624	53.5	-34.4	ALL	SPEED	SUR	487	4	1	2.8	-1.7	3.3
44726	54.0	-25.0	ALL	SPEED	SUR	521	1	0	3.0	-2.2	3.7
44742	44.3	-35.9	ALL	SPEED	SUR	255	1	0	2.3	-2.0	3.0
44743	48.5	-24.4	ALL	SPEED	SUR	1	1	100	0.0	0.0	0.0
44762	41.0	-34.2	ALL	SPEED	SUR	230	0	0	1.9	-1.5	2.4
62518	42.1	-18.9	ALL	SPEED	SUR	348	0	0	2.2	-0.1	2.2
62551	45.9	-8.9	ALL	SPEED	SUR	216	0	0	2.9	-0.7	3.0
62697	58.1	-27.5	ALL	SPEED	SUR	186	3	2	4.3	-2.2	4.8
62803	55.4	-30.7	ALL	SPEED	SUR	928	2	0	3.3	-4.3	5.4
WIND DIRECTION											
39701	13.9	-77.5	ALL	DIRN.	SUR	1	0	0	0.0	0.1	0.1
41529	39.1	-45.8	ALL	DIRN.	SUR	153	0	0	34.6	-7.5	35.4
41530	35.0	-42.4	ALL	DIRN.	SUR	172	0	0	15.0	5.1	15.9
41611	14.1	-50.5	ALL	DIRN.	SUR	167	0	0	8.3	-0.4	8.3
41612	17.3	-55.2	ALL	DIRN.	SUR	182	0	0	8.7	2.1	9.0
41613	17.1	-54.2	ALL	DIRN.	SUR	171	0	0	9.3	7.2	11.7
44513	45.0	-33.5	ALL	DIRN.	SUR	229	0	0	38.0	18.8	42.4
44624	53.5	-34.4	ALL	DIRN.	SUR	459	4	1	25.2	16.4	30.1
44726	54.0	-25.0	ALL	DIRN.	SUR	500	1	0	27.2	0.1	27.2
44742	44.3	-35.9	ALL	DIRN.	SUR	252	1	0	18.8	-9.2	21.0
44743	48.5	-24.4	ALL	DIRN.	SUR	1	1	100	0.0	0.0	0.0
44762	41.0	-34.2	ALL	DIRN.	SUR	209	0	0	17.4	-6.1	18.5
62518	42.1	-18.9	ALL	DIRN.	SUR	308	0	0	17.1	-13.2	21.6
62551	45.9	-8.9	ALL	DIRN.	SUR	185	0	0	28.1	0.6	28.1
62697	58.1	-27.5	ALL	DIRN.	SUR	184	3	2	45.9	2.2	46.0
62803	55.4	-30.7	ALL	DIRN.	SUR	907	2	0	27.0	4.4	27.4

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	2924	0	1	1.9	0.0	2950	0	2	0	8.3	0.7
ACA	961	1	1	2.0	0.2	988	0	2	0	7.8	0.2
AEA	355	1	100	2.5	0.0	357	0	4	0	10.5	0.6
AEL	397	0	3	2.2	-0.4	404	0	6	0	10.7	0.8
AEY	33	3	6	1.9	1.1	34	0	0	0	8.4	0.4
AFL	163	0	6	2.4	0.9	167	0	5	0	8.5	0.2
AFR	888	1	7	2.0	0.0	926	0	6	0	8.6	0.8
AIC	24	0	0	2.6	-0.4	24	0	0	0	10.4	1.4
AIH	141	2	4	1.9	0.3	137	0	4	0	8.5	-0.1
AJM	32	0	9	2.5	-0.3	32	0	3	0	9.4	-1.6
AME	20	0	0	2.1	-1.1	20	0	0	0	9.6	2.5
AMX	101	2	2	2.2	-0.5	102	0	4	0	11.7	-0.4
ANZ	180	0	1	2.0	-0.9	181	0	2	1	7.5	0.1
AOM	228	0	2	1.9	1.0	239	0	5	0	12.2	0.7
ATN	66	6	17	3.1	-2.2	66	0	100	0	22.2	9.8
AUA	65	0	3	2.1	-0.3	67	0	3	0	8.9	-1.2
AVA	83	2	4	2.3	0.0	85	1	8	0	11.8	0.3
AZA	399	1	8	2.5	1.0	416	1	6	0	8.7	0.9
BAL	242	0	19	2.3	-0.4	252	0	19	0	9.2	1.0
BAW	1372	0	4	2.0	-0.1	1383	0	6	0	9.0	0.9
BBC	28	0	0	2.7	1.4	28	0	4	0	8.2	0.3
BWA	92	0	100	2.0	1.4	97	1	4	0	10.4	-0.2
CDN	310	0	1	1.7	0.0	314	0	1	0	6.2	0.2
CFC	25	4	28	2.2	0.2	26	0	27	0	8.6	-0.8
CFG	454	1	3	2.2	-1.0	478	0	4	0	11.0	0.1
CKS	34	3	21	4.4	-1.9	36	0	22	0	18.8	0.1
CKT	66	2	8	1.7	0.2	69	1	7	0	10.7	-0.6
CLX	239	0	1	1.6	-0.6	240	0	1	0	7.6	0.7
COA	475	1	3	2.1	0.9	476	0	3	0	9.5	0.8
CRL	273	2	5	2.1	0.0	283	0	5	0	11.1	0.0
CUB	136	0	48	1.8	1.0	139	1	100	0	13.0	0.1
DAL	2089	0	2	1.9	0.3	2101	0	2	0	9.6	0.8
DHL	382	3	100	3.9	-2.2	382	0	100	0	12.7	1.1
DLH	2282	0	10	2.0	0.5	2306	0	11	1	8.1	1.0
DOA	34	0	6	2.9	-0.7	34	0	6	0	12.5	-3.7
ELN	36	0	11	2.4	1.2	37	0	51	0	21.6	2.5
ELY	130	0	8	1.6	0.3	133	0	9	0	9.5	0.1
EWW	131	0	38	2.7	1.3	131	1	100	0	17.1	3.9
FDX	592	0	4	1.9	0.4	595	0	6	0	9.3	0.8
FIN	327	0	2	1.7	0.3	326	0	3	0	7.8	0.5
GAF	28	4	7	3.0	1.1	28	0	0	0	9.8	-0.7
HLF	91	1	2	2.1	-0.4	90	1	4	0	15.2	1.5
HZM	20	0	0	2.0	0.2	20	0	5	0	15.3	-2.9
IBE	1047	1	28	2.3	0.0	1053	0	28	0	12.6	0.9
ICE	579	0	1	1.5	-0.1	567	0	2	1	6.0	0.0
KLM	1749	0	1	2.0	0.2	1778	0	2	0	8.7	0.5
LDA	129	1	14	2.6	-1.3	132	2	14	0	11.2	0.8
LDI	203	0	26	2.3	-1.3	215	0	26	0	9.5	0.4
LIB	136	0	6	1.7	0.9	141	1	9	0	10.5	-0.1
LKR	28	0	4	2.2	1.0	27	0	7	0	10.4	-0.3
LOT	194	0	1	1.9	-0.7	199	1	3	0	8.4	0.0
LTU	471	0	4	2.0	0.1	477	0	6	0	11.5	1.2
MAH	21	0	14	3.8	1.4	22	9	14	0	11.0	-0.8
MON	32	0	0	1.3	-0.2	32	0	0	0	8.1	1.7
MPH	466	0	2	1.9	-0.6	478	0	4	0	10.4	0.5
NWA	1797	1	2	2.1	0.9	1836	0	3	0	8.9	0.8
PAC	25	0	0	2.2	0.8	27	0	4	0	12.1	3.7
RAM	42	0	12	3.2	-1.4	42	0	10	0	12.3	1.6
RCH	230	1	100	3.0	0.4	236	0	100	0	16.1	1.8

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RJA	44	2	5	2.8	0.9	43	0	7	5	10.0	-2.2
RRR	99	1	25	2.2	-0.7	101	2	27	0	10.8	0.8
SAB	28	0	4	1.9	-0.2	29	0	0	0	9.2	3.6
SAS	790	0	2	2.0	0.2	797	0	3	0	8.0	0.2
SEU	60	0	2	1.8	-0.2	62	0	3	0	9.1	0.4
SIA	82	0	7	1.8	-0.3	80	0	8	1	8.6	-0.7
SLR	43	0	33	1.5	-0.5	46	0	28	0	10.5	1.2
SPP	33	0	15	1.3	-0.1	33	0	15	0	10.4	-1.2
SVA	96	0	4	2.5	0.8	102	0	100	0	15.4	3.1
SWR	162	1	6	2.4	0.5	164	0	4	0	9.2	0.2
TAP	190	1	4	2.6	0.8	191	1	4	0	10.1	0.5
TEJ	71	1	20	2.5	0.5	72	0	18	0	9.9	2.1
THY	22	0	0	2.4	0.1	22	0	5	0	10.3	-0.5
TOW	44	0	0	1.7	0.3	47	0	2	0	8.5	-0.2
TWA	1076	0	3	2.2	0.2	1086	0	4	0	9.7	1.1
UAL	1816	0	1	2.0	-0.8	1833	0	1	0	7.5	0.5
ULE	125	0	1	1.8	0.3	126	0	2	0	9.8	1.2
UPS	610	0	16	1.8	0.6	618	0	17	0	7.9	1.2
USA	364	1	2	2.0	-0.1	358	0	3	0	10.1	1.0
VIR	204	0	3	1.9	-0.5	211	0	5	0	8.9	1.9
BA	7071	0	13	1.6	0.4	7069	0	20	0	8.0	1.0
IT	22	0	0	0.8	0.4	22	0	0	0	7.0	0.3
KL	3145	0	15	1.6	0.4	3145	0	15	0	8.2	1.1
LH	411	0	10	1.8	0.7	411	0	9	0	8.8	1.1
N	211	2	60	2.9	1.0	225	0	7	0	12.6	0.5

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored
- :NUM OBS :Number of observations available at level shown during period.
- :NUM GROSS :Number of gross errors at level shown during period.
- :% REJ :Percentage of observations rejected by quality control at level shown during period.
- :SD :SD of difference of observations from background values at level shown excluding those with gross errors.
- :BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

```
 WMO   OBS              NUM    NUM
IDENT TIME ELM  LEV     OBS   GROSS      SD      RMS     BIAS

BBXX  SH00  Z   100       1     0       0.0     73.0     73.0
DBBH   00   Z   100      13     0      15.6     19.3     11.3
DBBH   12   Z   100      18     0      14.6     31.2     27.6
DBLK   00   Z   100       1     0       0.0     49.0     49.0
EHOA   00   Z   100       1     0       0.0      7.0      7.0

EHOA   12   Z   100      16     0      29.7     36.4    -20.9
EOGW   00   Z   100      22     0      13.6     14.5      5.0
EOGW   12   Z   100      16     0      13.9     14.0      1.8
FNOR   00   Z   100      10     0      13.0     16.2      9.8
FNOR   12   Z   100      13     0       9.2      9.8      3.2

FNOU   00   Z   100      11     0      11.7     39.7     37.9
FNOU   12   Z   100       8     0      23.3     43.6     36.9
FNPH   00   Z   100      11     0      11.6     20.3     16.6
FNPH   12   Z   100       7     0      26.3     28.1     10.0
FNRS   00   Z   100      12     0      20.5     21.2      5.7

FNRS   12   Z   100      11     0      23.1     23.5     -4.7
FZVN   00   Z   100      20     0      14.5     26.0     21.6
FZVN   12   Z   100      19     0      28.8     35.2     20.3
GNRS   00   Z   100       1     0       0.0      3.0     -3.0
JBOA   00   Z   100       1     0       0.0     18.0     18.0

JCCX   00   Z   100       1     0       0.0     11.0     11.0
JDWX   00   Z   100       1     0       0.0     63.0     63.0
JIVB   00   Z   100       1     0       0.0     43.0     43.0
KCEJ   00   Z   100       4     0      11.8     18.1     13.8
KCEJ   12   Z   100       9     0      51.3     55.8     22.0

LDWR   00   Z   100      27     0      20.6     28.0     19.0
LDWR   12   Z   100      26     0      17.5     24.0     16.5
OXTS2  00   Z   100      17     0      19.3     26.6     18.3
OXTS2  12   Z   100      17     0      14.8     27.3     22.9
OXYH2  00   Z   100       4     0      26.2     29.9     14.5

OXYH2  12   Z   100       1     0       0.0     22.0     22.0
PH     00   Z   100       1     0       0.0     28.0     28.0
SHIPAF 00   Z   100       1     0       0.0     34.0     34.0
SHIPAF 12   Z   100       1     0       0.0     73.0     73.0
TFTA   00   Z   100      16     0      14.8     26.3     21.8

TFTA   12   Z   100      14     0      23.1     30.0     19.1
V2EZ   00   Z   100       8     0      41.0     47.6     24.1
V2EZ   12   Z   100       9     0      24.2     39.9     31.7
V2GH   00   Z   100      12     0      31.5     32.0     -5.8
V2GH   12   Z   100      15     0      18.5     18.9     -3.7

V2LV   00   Z   100       1     0       0.0     16.0     16.0
V2LV   12   Z   100       3     0      25.5     25.8      4.0
WTEU   00   Z   100       6     0      12.7     29.2     26.3
03953  00   Z   100      24     0      11.5     19.2     15.4
03953  12   Z   100      22     0      12.9     21.3     17.0

04018  00   Z   100      27     0      17.3     47.6     44.4
04018  12   Z   100      26     0      18.9     47.7     43.8
04220  00   Z   100      28     0      14.5     44.0     41.5
04220  12   Z   100      27     0      15.5     40.8     37.7
04270  00   Z   100      27     0      22.2     44.2     38.3

04270  12   Z   100      25     0      14.7     34.6     31.4
04339  00   Z   100      25     0      14.7     30.2     26.4
04339  12   Z   100      24     0      17.7     31.5     26.1
04360  00   Z   100      25     0      19.1     27.2     19.4
04360  12   Z   100      25     0      22.7     30.3     20.1

08001  00   Z   100      25     0      13.2     17.8     11.9
08001  12   Z   100      25     0      13.8     17.5     10.8
08508  00   Z   100      26     0      13.1     24.8     21.1
08508  12   Z   100      26     0      24.3     30.9     19.0
08522  00   Z   100      28     0      12.7     19.7     15.1

08522  12   Z   100      27     0      13.5     17.3     10.8
```

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
60020	00	Z	100	28	0	14.9	17.8	9.7
60020	12	Z	100	27	0	18.2	19.1	5.8
71600	00	Z	100	28	0	15.0	37.6	34.5
71600	12	Z	100	27	0	13.8	27.5	23.8
72201	00	Z	100	26	0	39.0	51.1	33.0
72201	12	Z	100	24	0	41.1	55.2	36.8
72402	00	Z	100	27	0	22.5	26.8	14.6
72402	12	Z	100	26	0	14.8	18.3	10.8
74494	00	Z	100	15	0	26.1	27.8	9.7
74494	12	Z	100	15	0	30.1	32.7	12.7
78016	00	Z	100	25	0	8.9	24.4	22.7
78016	12	Z	100	26	0	13.1	22.9	18.8

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
BBXX	SH00	Z	500	1	0	0.0	21.0	21.0
DBBH	00	Z	500	17	0	8.3	12.4	9.2
DBBH	12	Z	500	18	0	7.0	9.8	6.8
DBLK	00	Z	500	1	0	0.0	12.0	12.0
EHOA	00	Z	500	1	0	0.0	8.0	8.0
EHOA	12	Z	500	17	0	16.8	16.9	-0.9
EOGW	00	Z	500	10	0	17.4	18.6	-6.5
EOGW	12	Z	500	8	0	15.5	15.6	-1.4
FNOR	00	Z	500	11	0	13.7	15.6	7.5
FNOR	12	Z	500	13	0	20.2	23.1	11.2
FNOU	00	Z	500	16	0	11.3	21.9	18.8
FNOU	12	Z	500	10	0	14.2	23.1	18.3
FNPH	00	Z	500	12	0	17.4	18.7	6.8
FNPH	12	Z	500	7	0	23.3	26.8	13.1
FNRS	00	Z	500	12	0	13.5	15.2	7.0
FNRS	12	Z	500	10	1	12.0	13.9	7.1
FZVN	00	Z	500	22	0	18.8	19.8	6.1
FZVN	12	Z	500	18	0	19.7	21.7	9.2
GNRS	00	Z	500	1	0	0.0	1.0	1.0
JBOA	00	Z	500	1	0	0.0	5.0	-5.0
JCCX	00	Z	500	1	0	0.0	5.0	-5.0
JDWX	00	Z	500	1	0	0.0	9.0	9.0
JIVB	00	Z	500	1	0	0.0	3.0	3.0
KCEJ	00	Z	500	19	0	13.1	15.3	7.9
KCEJ	12	Z	500	22	1	11.5	16.4	11.7
LDWR	00	Z	500	27	0	20.8	32.5	25.0
LDWR	12	Z	500	25	0	19.9	27.3	18.6
OXTS2	00	Z	500	18	0	26.1	35.1	23.4
OXTS2	12	Z	500	20	0	21.1	23.2	9.8
OXYH2	00	Z	500	4	0	10.9	12.8	-6.8
OXYH2	12	Z	500	1	0	0.0	4.0	-4.0
PH	00	Z	500	1	0	0.0	13.0	13.0
SHIPAF	00	Z	500	1	0	0.0	5.0	5.0
SHIPAF	12	Z	500	1	0	0.0	26.0	26.0
TFTA	00	Z	500	16	0	24.6	25.1	5.0
TFTA	12	Z	500	14	0	17.4	17.4	-0.4
V2EZ	00	Z	500	7	0	43.2	46.0	15.9
V2EZ	12	Z	500	9	0	30.3	40.4	26.8
V2GH	00	Z	500	16	0	17.0	18.4	-7.3
V2GH	12	Z	500	18	0	20.1	20.4	-3.7
V2LV	00	Z	500	1	0	0.0	14.0	-14.0
V2LV	12	Z	500	3	0	20.2	21.6	-7.7
WTEU	00	Z	500	6	0	9.1	10.8	5.8
03953	00	Z	500	28	0	13.9	24.3	20.0
03953	12	Z	500	27	0	19.3	24.1	14.5
04018	00	Z	500	27	0	16.5	44.4	41.2
04018	12	Z	500	27	0	16.5	38.2	34.5
04220	00	Z	500	28	0	14.0	19.6	13.8
04220	12	Z	500	26	0	10.1	14.5	10.4
04270	00	Z	500	27	0	15.9	28.9	24.1
04270	12	Z	500	25	0	18.0	27.6	20.9
04339	00	Z	500	26	0	16.8	23.4	16.4
04339	12	Z	500	24	0	14.3	21.6	16.3
04360	00	Z	500	24	0	15.8	18.4	9.3
04360	12	Z	500	26	0	15.8	16.3	4.1
08001	00	Z	500	28	0	12.3	15.1	8.9
08001	12	Z	500	27	0	10.1	10.8	3.9
08508	00	Z	500	26	0	10.3	18.5	15.3
08508	12	Z	500	26	0	21.6	25.4	13.3
08522	00	Z	500	28	0	11.7	19.4	15.5
08522	12	Z	500	27	0	11.6	17.4	13.0

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
60020	00	Z	500	28	0	11.6	21.3	17.8
60020	12	Z	500	27	0	16.3	22.4	15.3
71600	00	Z	500	28	0	12.8	17.6	12.1
71600	12	Z	500	27	0	9.8	15.5	12.0
72201	00	Z	500	28	0	10.4	16.9	13.4
72201	12	Z	500	24	0	11.2	12.1	4.6
72402	00	Z	500	28	0	13.5	14.0	3.8
72402	12	Z	500	27	0	10.6	11.3	3.8
74494	00	Z	500	28	0	11.3	12.3	4.8
74494	12	Z	500	25	0	10.0	10.3	2.3
78016	00	Z	500	26	0	10.7	12.4	6.2
78016	12	Z	500	25	0	5.7	6.7	3.6

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	10	0	0	0.0	1.4	-2.9
DBBH	12	V	100	18	0	0	3.9	1.1	1.3
DBLK	00	V	100	1	0	0	4.3	1.9	-2.0
EHOA	00	V	100	1	0	0	2.1	-3.4	0.1
EHOA	12	V	100	16	0	0	2.1	-4.1	-1.7
EOGW	00	V	100	18	0	0	5.1	0.8	-0.6
EOGW	12	V	100	13	0	0	3.1	1.0	-1.2
FNOR	00	V	100	10	0	0	3.2	-0.7	-0.5
FNOR	12	V	100	13	0	0	2.6	-1.9	-0.4
FNOU	00	V	100	11	0	0	3.7	-1.7	-0.7
FNOU	12	V	100	8	0	0	3.3	-0.8	0.3
FNPH	00	V	100	12	0	0	3.3	-1.5	-0.3
FNPH	12	V	100	7	0	0	3.2	-2.5	0.9
FNRS	00	V	100	11	0	0	3.2	0.0	-1.1
FNRS	12	V	100	11	0	9	3.9	-4.1	-3.0
FZVN	00	V	100	17	0	5	6.6	-1.2	2.4
FZVN	12	V	100	18	0	0	6.0	0.5	1.2
GNRS	00	V	100	1	0	0	4.2	0.6	-1.7
JBOA	00	V	100	1	0	0	4.2	-0.6	1.5
JCCX	00	V	100	1	0	0	4.2	-1.7	6.2
JDWX	00	V	100	1	0	0	4.2	-0.3	2.5
JIVB	00	V	100	1	0	0	4.2	-1.1	1.6
KCEJ	00	V	100	2	0	0	4.2	0.4	2.1
KCEJ	12	V	100	6	0	0	4.2	-0.8	2.2
LDWR	00	V	100	27	0	0	4.2	-0.2	-2.5
LDWR	12	V	100	26	0	0	1.8	-0.7	-1.2
OXTS2	00	V	100	17	0	0	2.2	-0.8	0.3
OXTS2	12	V	100	17	0	0	2.1	-2.3	0.1
OXYH2	00	V	100	4	0	0	2.8	-0.8	0.7
OXYH2	12	V	100	1	0	0	2.8	-10.4	0.8
PH	00	V	100	1	0	0	2.8	-0.6	2.2
SHIPAF	00	V	100	1	0	0	2.8	-3.2	2.7
SHIPAF	12	V	100	1	0	0	2.8	4.2	0.3
TFTA	00	V	100	15	0	0	2.8	-1.1	1.7
TFTA	12	V	100	13	0	0	4.1	-1.2	0.8
V2EZ	00	V	100	7	0	0	2.3	-1.7	-0.5
V2EZ	12	V	100	8	0	0	2.3	0.5	1.4
V2GH	00	V	100	12	0	0	2.3	2.6	-1.7
V2GH	12	V	100	15	0	0	6.8	-0.5	-0.9
V2LV	00	V	100	1	0	0	3.5	5.2	15.2
V2LV	12	V	100	2	0	0	3.5	3.8	-1.3
WTEU	00	V	100	6	0	0	3.5	0.3	1.1
03953	00	V	100	23	0	0	4.3	-1.5	0.1
03953	12	V	100	22	0	0	3.5	-1.4	-1.9
04018	00	V	100	27	0	0	3.2	-0.2	-1.1
04018	12	V	100	26	0	0	2.2	-1.5	0.3
04220	00	V	100	28	0	0	2.2	0.2	1.9
04220	12	V	100	27	0	0	2.4	-1.4	1.3
04270	00	V	100	27	0	0	2.5	-1.4	1.5
04270	12	V	100	25	0	0	3.8	-2.2	1.2
04339	00	V	100	25	0	0	2.0	0.1	-0.6
04339	12	V	100	23	0	0	1.9	-1.0	-0.8
04360	00	V	100	22	0	0	1.8	-0.5	1.2
04360	12	V	100	25	0	0	2.1	-1.2	0.4
08001	00	V	100	24	0	0	4.0	-2.0	-1.2
08001	12	V	100	22	0	4	5.2	-2.9	-0.3
08508	00	V	100	26	0	0	2.4	0.7	0.0
08508	12	V	100	26	0	0	3.3	-1.0	-1.5
08522	00	V	100	28	0	0	3.0	1.8	-1.5
08522	12	V	100	27	0	0	3.4	-0.8	0.0
60020	00	V	100	27	0	0	6.8	0.9	-1.4

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
60020	12	V	100	27	0	0	3.2	-1.8	-0.4
71600	00	V	100	28	0	0	4.2	-0.7	0.7
71600	12	V	100	26	0	0	3.1	-0.1	1.1
72201	00	V	100	25	0	0	2.1	1.3	-0.6
72201	12	V	100	24	0	0	4.3	0.9	-0.6
72402	00	V	100	27	0	0	3.0	0.6	0.3
72402	12	V	100	26	0	0	4.0	-0.6	-1.2
74494	00	V	100	14	0	0	2.0	-0.9	1.8
74494	12	V	100	12	0	0	3.8	-3.3	2.0
78016	00	V	100	25	0	0	5.5	-0.4	0.0
78016	12	V	100	25	0	0	3.1	-1.7	1.0

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: February, 1997

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
BBXX	SH00	V	500	1	0	100	0.0	1.8	-16.9
DBBH	00	V	500	17	0	0	0.0	2.0	0.1
DBBH	12	V	500	18	0	0	3.0	0.8	0.8
DBLK	00	V	500	1	0	0	2.6	-1.1	1.2
EHOA	00	V	500	1	0	0	3.0	-0.6	-0.4
EHOA	12	V	500	17	0	0	3.0	-2.1	0.6
EOGW	00	V	500	10	0	10	3.6	2.0	0.7
EOGW	12	V	500	8	0	0	6.8	0.7	-1.1
FNOR	00	V	500	11	0	0	2.9	-1.0	-1.7
FNOR	12	V	500	13	0	0	1.7	-2.0	-0.6
FNOU	00	V	500	16	0	0	4.8	0.0	0.7
FNOU	12	V	500	10	0	0	2.4	-1.4	-1.3
FNPH	00	V	500	13	0	0	2.8	0.1	-1.0
FNPH	12	V	500	7	0	0	3.9	-2.4	-1.4
FNRS	00	V	500	11	0	0	3.9	0.8	0.8
FNRS	12	V	500	10	0	10	2.6	-8.2	-4.7
FZVN	00	V	500	18	0	0	4.3	2.7	2.0
FZVN	12	V	500	17	0	0	5.7	3.3	-0.3
GNRS	00	V	500	1	0	0	6.0	0.9	2.3
JBOA	00	V	500	1	0	0	6.0	-1.6	-1.0
JCCX	00	V	500	1	0	0	6.0	-0.2	-1.5
JDWX	00	V	500	1	0	0	6.0	-1.3	1.1
JIVB	00	V	500	1	0	0	6.0	-0.8	2.3
KCEJ	00	V	500	19	0	0	2.5	-0.7	1.8
KCEJ	12	V	500	21	0	0	4.1	-1.7	1.4
LDWR	00	V	500	27	0	0	4.6	-1.2	0.2
LDWR	12	V	500	25	0	0	3.3	-0.5	0.5
OXTS2	00	V	500	18	0	0	4.8	0.3	-1.5
OXTS2	12	V	500	19	0	0	3.4	-0.8	-0.1
OXYH2	00	V	500	4	0	0	3.2	-1.5	1.6
OXYH2	12	V	500	1	0	0	3.2	-3.0	2.4
PH	00	V	500	1	0	0	3.2	-0.8	-0.6
SHIPAF	00	V	500	1	0	0	3.2	2.4	-5.7
SHIPAF	12	V	500	1	0	0	3.2	0.8	-1.6
TFTA	00	V	500	10	0	0	3.2	1.9	-0.8
TFTA	12	V	500	10	0	0	4.5	0.8	2.3
V2EZ	00	V	500	7	0	0	5.4	2.4	-0.8
V2EZ	12	V	500	9	0	0	5.4	1.7	1.5
V2GH	00	V	500	16	0	0	5.4	0.3	2.3
V2GH	12	V	500	18	0	0	3.1	-3.0	2.1
V2LV	00	V	500	1	0	0	4.4	2.9	3.3
V2LV	12	V	500	2	0	0	4.4	-2.3	-2.2
WTEU	00	V	500	6	0	0	4.4	1.0	-2.0
03953	00	V	500	28	0	0	5.1	-0.3	0.8
03953	12	V	500	27	0	0	4.3	-1.1	-1.8
04018	00	V	500	27	0	0	4.6	1.5	-1.1
04018	12	V	500	27	0	3	4.5	0.6	-0.7
04220	00	V	500	28	0	0	3.0	1.5	1.5
04220	12	V	500	26	0	0	3.7	0.3	0.1
04270	00	V	500	27	0	0	3.4	0.3	1.2
04270	12	V	500	25	0	0	3.8	-0.2	-0.1
04339	00	V	500	26	0	0	3.0	2.7	1.9
04339	12	V	500	24	0	0	4.0	-0.2	-0.4
04360	00	V	500	24	0	0	4.3	1.3	1.4
04360	12	V	500	25	0	0	2.4	1.0	1.6
08001	00	V	500	28	0	0	4.5	-0.6	-0.1
08001	12	V	500	27	0	3	3.8	-1.6	-0.6
08508	00	V	500	26	0	0	3.3	0.0	0.2
08508	12	V	500	26	0	0	2.9	-1.0	-0.6
08522	00	V	500	28	0	0	3.1	0.5	-0.2
08522	12	V	500	27	0	0	3.4	-1.2	-1.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
60020	00	V	500	27	0	0	3.7	-0.4	0.1
60020	12	V	500	27	0	0	3.7	-0.5	-0.5
71600	00	V	500	28	0	0	4.0	0.3	0.9
71600	12	V	500	27	0	0	3.5	1.9	1.2
72201	00	V	500	28	0	0	3.7	0.0	0.1
72201	12	V	500	24	0	0	2.2	0.3	-0.2
72402	00	V	500	28	0	0	2.3	0.3	1.0
72402	12	V	500	27	0	0	3.6	0.5	0.8
74494	00	V	500	27	0	0	3.2	-1.3	0.6
74494	12	V	500	25	0	0	3.2	-0.5	1.0
78016	00	V	500	25	0	0	3.2	0.3	0.6
78016	12	V	500	25	0	0	2.0	-1.5	-0.5

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45